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THE

Municipality of George Town,  
PENANG.

Straits Settlements.

HEALTH OFFICER'S

ANNUAL REPORT

FOR THE YEAR 1937.

PRICE 50 CENTS PER COPY.

OBTAINABLE FROM THE MUNICIPAL SECRETARY.

1938.

The Criterion Press Co., Ltd.,  
Penang.



STATISTICAL SUMMARY.

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(22 AUGUST 1938)

Situation	...	...	...	Lat. 5° 24' N., Long. 100° 20' E.
Average Elevation above L.W.M.O.S.T.	...	...	...	Town area 12 feet 6 inches. Suburban area 25 feet 0 inch.
O. S. Tides and fall	...	...	...	9 feet 0 inch.
Rainfall 1937 (average of three readings within Municipal limits)	...	...	...	92.63 inches
Average annual rainfall for preceding 57 years (including 1937) at the Prison	...	...	...	108.32 inches
Rainfall for 1937 at the Prison	...	...	...	92.63 inches
Mean Temperature 1937 (observed at 9 a.m.)	...	...	...	82.4° F.
Mean Temperature 1937 (observed at 3 p.m.)	...	...	...	88.1° F.
Mean Maximum Temperature 1937	...	...	...	89.5° F.
Mean Minimum Temperature 1937	...	...	...	74.8° F.
Absolute Maximum Temperature 1937	...	...	...	95.0° F.
Absolute Minimum Temperature 1937	...	...	...	65.0° F.
Total area of Penang Island	...	...	...	108 square miles
Area within Municipal limits	...	...	...	9.4 square miles or 5,845 acres
Estimated population (mid-year)	...	...	...	168,667
Density of population	...	...	...	28.86 per acre.
Crude death rate	...	...	...	21.92 per mille.
Infant mortality	...	...	...	129
Birth rate	...	...	...	35.21 per mille.
Sterling equivalent	...	...	...	2s. 4d.

## **STAFF OF THE HEALTH DEPARTMENT ON 31st DECEMBER, 1937.**

---

W. H. Brodie ...	... M.B., Ch. B., D.P.H.	
		Health Officer,
		Registrar of Births and Deaths,
		Deputy Superintendent of Vaccination,
		Registrar of Midwives,
		Medical Superintendent of Infectious Diseases Hospital,
		Medical Superintendent of Chinese Small-pox Hospital.
E. W. Graham	.. M.B., Ch. B.,	
		Deputy Health Officer,
		Deputy Registrar of Births and Deaths,
		Deputy Superintendent of Vaccination.
T. P. Khoo ...	... M.B., B.S. (Hongkong),	
		Deputy Registrar of Deaths,
		Assistant Medical Officer.

### **SANITARY SECTION.**

J. E. Miller ...	... M.S.I.A., Cert. R.S.I.,			
		Chief Sanitary Inspector, joined the service	14th September, 1933.	
R. J. Rangel ...	... Sanitary Inspector,	do.	1st October,	1913.
Ow Leong Chye	... do.	do.	1st July,	1921.
E. V. Lessler	... do.	do.	1st July,	1921.
John Loh ...	... Sanitary Sub-Inspector	do.	17th May,	1921.
Yeap Hin Tat ...	... do.	do.	14th August,	1922.
Lim Khay Seng	... do.	do.	1st March,	1923.
Lo Siew Tean ...	... do.	do.	1st July,	1923.
Teoh Cheng Hoe	... do.	do.	1st December,	1923.
M. S. d'Orville	... do.	do.	18th February,	1924.
Oh Cheng Guan	... do.	do.	18th May,	1926.
Liew Ah Foo ...	... do.	do.	20th May,	1926.
Lim Teik Ghee	... do.	do.	16th January,	1930.
Rejab bin Othman	... do.	do.	6th February,	1930.

Oh Cheng Ian ...	... Sanitary Sub-Inspector,	joined the service	1st Nov.,	1930.
C. B. de Souza	... do.	do.	12th June,	1933.
M. B. Pestana	... do.	do.	1st July,	1934.
Lee Yin Koon	... do.	do.	1st January,	1935.
Lim Mah Chan	... do.	do.	1st August,	1935.
Teoh Cheng Kooi	... do.	do.	1st May,	1936.
E. D. Joseph ...	... Chief Clerk,	do.	6th October,	1920.
Ooi Leong Teik	... 2nd Clerk,	do.	1st January,	1921.
Lim Chin Aun	... 3rd Clerk,	do.	17th October,	1928.
Goh Swee Hock	... 4th Clerk,	do.	1st September,	1934.
Idris bin Haji Sahak	... Milk Inspector,	do.	14th July,	1937.
N. Rethinam ...	... Dresser,	do.	15th January,	1934.
Eusoff bin Abdul Gaffour	Assistant Dresser,	do.	25th August,	1930.

#### **MATERNITY AND CHILD WELFARE SECTION.**

Yit Hou Hoashoo ... M.B., Ch. B.

##### **Lady Assistant Medical Officer**

Miss H. Flint ...	... S.R.N., S.C.M., A.R. San. I.,	Health Sister,	joined the service	1st May,	1928.
Miss F. M. Sloan	... S.R.N., S.C.M.,	Health Sister	do.	13th November,	1931
Mrs. Lena Benjamin	... Health Nurse,	do.	1st August,	1936.	
Miss Lim Beh Kah	... do.	do.	1st August,	1936.	

Eight qualified midwives as part-time nurses.

#### **CONSERVANCY SECTION, MARKETS AND BATHS, AND STREET STALLS.**

W. G. F. Colebeck	... Cert. R.S.I., Certificated Food Inspector,	Town Superintendent,	joined the service	27th August,	1936.
Yeap Choo Eng	... Conservancy Inspector	do.	18th August,	1921.	
M. Maruthalingam	... do.	do.	1st October,	1931.	
S. M. Soosay ...	... do.	do.	5th January,	1929.	
Foo Joo Sun ...	... Clerk	do.	1st July,	1926.	
K. S. Naidu ...	... do.	do.	18th November,	1937	
G. D. Cooper ...	... Market Inspector	do.	7th October,	1935.	
Lim Cheng Hoe	... Asst. Inspector of Street Stalls	do.	1st May,	1936.	

MUNICIPAL HEALTH OFFICE,

Penang, 25th May 1938.

To

THE MUNICIPAL COMMISSIONERS.

Gentlemen,

I have the honour to submit the following report on the health of the Municipality during 1937.

I. POPULATION.

The estimated mid-year population was 168,667. This figure is arrived at by the Registrar General's method of estimation which is commonly adopted.

The estimated distribution of the population at the middle of 1937 among the various races was as follows:—

TABLE I.

Race.		Males	Females.	Total.	Per cent. of Total.
European	...	794	531	1,325	1
Eurasian	...	1,027	1,203	2,230	1
Chinese	...	66,062	48,230	114,292	68
Malay	...	10,858	10,744	21,602	13
Indian	...	20,675	6,555	27,230	16
Others	...	1,114	874	1,988	1
Total	...	100,530	68,137	168,667	100

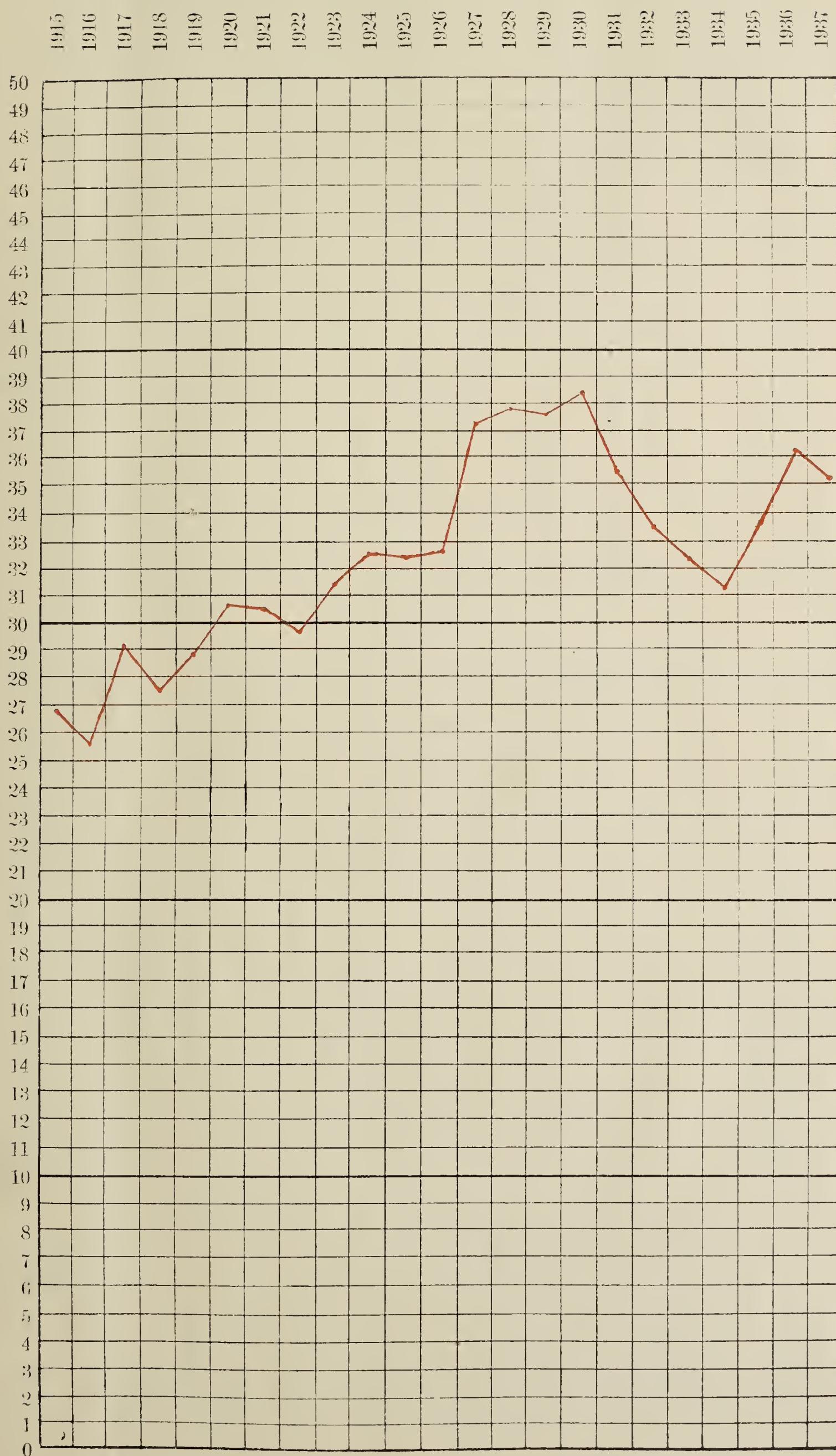
2. BIRTHS.

There were 5,939 births registered of whom 3,048 were males and 2,891 females, the birth rate being 35.21 per thousand. The figures for 1936 were, births 5,975 and birth rate 36.12.

Reckoned on the estimated female population alone the birth rate was 87.16 per thousand compared with 89.42 per thousand in 1936.

# PENANG MUNICIPALITY

## BIRTH RATES



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The number of births and birth rates for the various races were as follows:—

TABLE II.

Race.	Number of births.			Birth rate per thousand.	
	Males	Females	Total	Total population	Female population
European	30	26	56	42.26	105.46
Eurasian	30	20	50	22.42	41.56
Chinese	2,331	2,216	4,547	39.78	94.28
Malay	243	247	490	22.68	45.61
Indian	397	365	762	27.98	116.25
Others	17	17	34	17.10	38.90

A comparison with the birth registered during the previous ten years is shown here.

TABLE III.

Year	European	Eurasian	Chinese	Malay	Indian	Others	Total
1927	61	75	3,714	638	631	33	5,151
1928	58	52	3,928	595	661	38	5,332
1929	45	48	3,970	663	656	28	5,410
1930	61	56	4,084	674	730	25	5,630
1931	49	58	3,899	596	677	36	5,315
1932	50	63	3,739	568	679	30	5,129
1933	32	52	3,655	587	709	17	5,052
1934	39	39	3,656	508	709	26	4,977
1935	65	43	4,060	494	756	34	5,452
1936	54	45	4,546	517	772	41	5,975
Average for ten years	51	53	3,925	584	698	31	5,342
1937	56	50	4,547	490	762	34	5,939

## 3. DEATHS.

The gross total of deaths within Municipal limits during the year was 3,697 and crude death rate 21.92; of this number 489 were not normally resident in Penang and had been less than three months within Municipal limits. Omitting these we have 3,208 deaths and a corrected death rate of 19.02 per thousand.

The following table shows the distribution of the deaths in age groups and races.

TABLE IV.

RACE	SEX	AGES.													TOTAL	GRAND TOTAL
		Under 1 mth.	2-3 mths.	4-12 mths.	1-5 yrs.	6-15 yrs.	16-25 yrs.	26-35 yrs.	36-45 yrs.	46-55 yrs.	56-65 yrs.	66-75 yrs.	Over 75 yrs.	Unknown		
European	M	—	—	—	—	—	—	—	1	3	—	—	—	—	4	6
	F	—	—	—	—	—	—	1	—	—	—	—	1	—	2	
Eurasian	M	—	—	—	—	—	—	2	1	1	1	—	2	—	7	26
	F	—	—	—	2	—	1	—	2	4	1	4	5	—	19	
Chinese	M	101	97	147	141	40	86	117	154	198	170	95	25	1	1372	2324
	F	83	69	110	125	31	50	104	76	103	79	69	53	—	952	
Malay	M	6	24	13	16	5	12	17	21	24	24	11	11	—	184	386
	F	5	14	9	20	11	27	23	18	17	24	19	15	—	202	
Indian	M	26	8	13	30	10	24	42	44	35	23	17	10	1	283	445
	F	14	10	15	33	9	23	20	9	10	8	7	4	—	162	
Others	M	1	1	—	1	1	1	—	2	2	1	1	—	—	11	21
	F	1	—	1	1	—	1	1	2	—	1	—	2	—	10	
Total	M	134	130	173	188	56	123	178	222	261	222	124	48	2	1861	3208
	F	103	93	135	181	51	102	149	107	134	113	99	80	—	1347	
GRAND TOTAL	...	237	223	308	369	107	225	327	329	395	335	223	128	2	3208	

6/30/1917 M.C.

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Compared with 1936, the Chinese deaths have increased by 100; the Indian deaths have decreased by 17 and the Malay deaths by 86.

The total deaths of each race in the last ten years are shown here.

TABLE V.

Year	European	Eurasian	Chinese	Malay	Indian	Others
1928	11	24	2,544	434	623	32
1929	7	27	2,388	465	560	33
1930	14	23	2,245	409	549	19
1931	10	26	2,244	451	489	21
1932	6	28	2,186	474	490	16
1933	6	27	2,202	485	430	22
1934	2	26	2,385	564	485	30
1935	5	34	2,267	414	469	17
1936	6	25	2,224	472	462	26
1937	6	26	2,324	386	445	21

A comparison of the births and deaths of the different races may be of interest.

TABLE VI.

Race	Births	Birth Rate per thousand	Deaths	Death Rate per thousand
European	56	42.26	6	4.53
Eurasian	50	22.42	26	11.66
Chinese	4,547	39.78	2,324	20.33
Malay	490	22.68	386	17.87
Indian	762	27.98	445	16.34
Others	34	17.10	21	10.56

There were 227 still-births reported during the year.

## 4. INFANT MORTALITY.

Table VII shows according to race the infant mortality, that is, deaths of children under one year of age per 1,000 births occurring during the same period, and a comparison with 1936.

TABLE VII.

RACE.		Births	Deaths under	Infant deaths per	
			one year.	1937	thousand births.
				1937	1936
European	...	56	—	—	—
Eurasian	...	50	—	—	22
Chinese	...	4,547	607	133	122
Malay	...	490	71	145	209
Indian	...	762	86	113	110
Others	...	34	4	118	122
Total	...	5,939	768	129	126

The chief causes of infant deaths and the mortality compared with that in previous years from the same causes are given in Table VIII.

TABLE VIII.

Chief causes of infant deaths	Infant deaths per thousand births.									
	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Intestinal diseases	17	18	23	17	20	18	20	25	25	22
Respiratory diseases	32	31	26	28	27	27	42	38	24	32
Prematurity and Debility	29	25	21	19	19	20	27	27	24	21
Convulsions	62	57	50	45	44	48	34	32	27	22

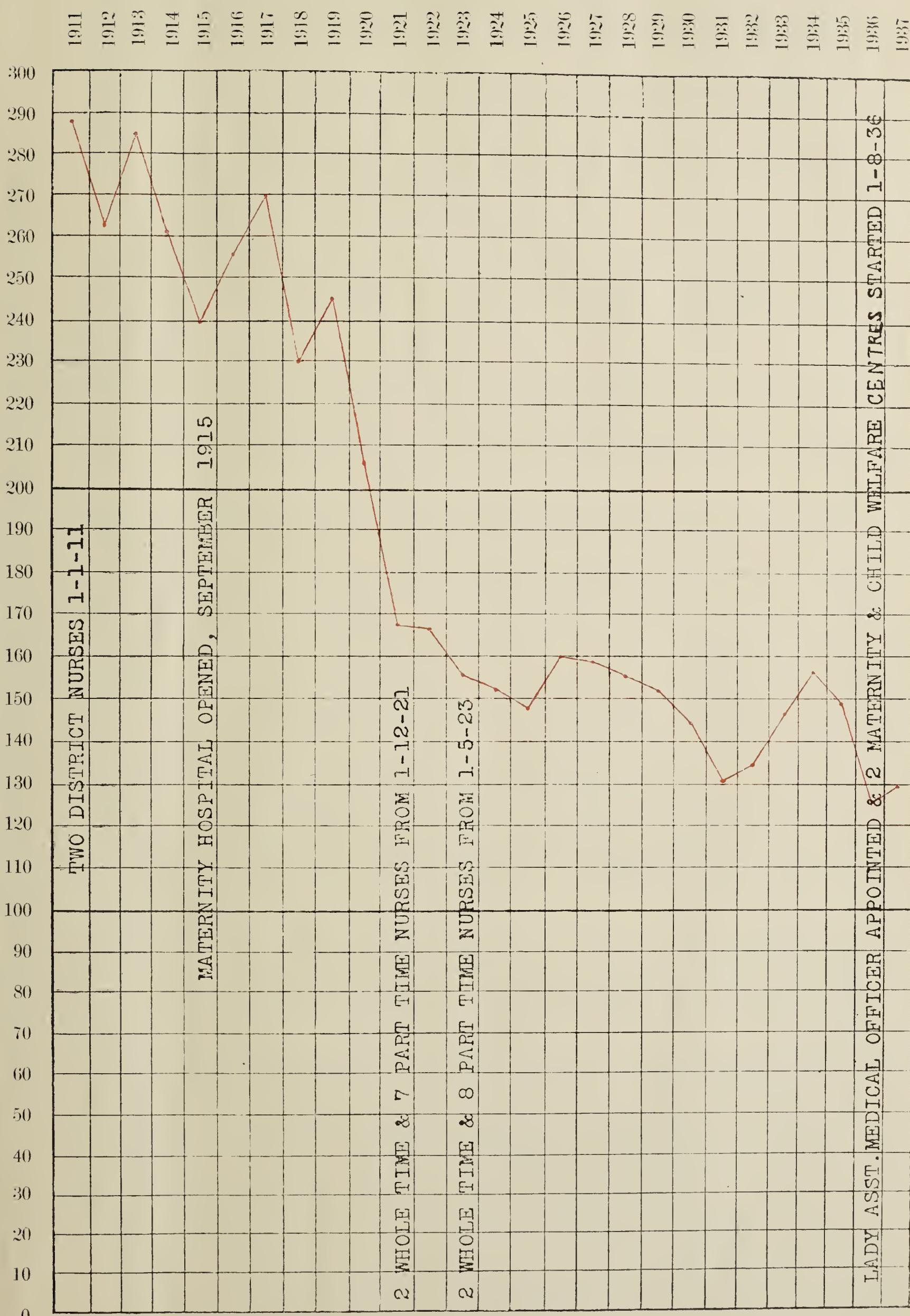
These causes accounted for 580 of the 768 infant deaths which occurred.

133 infants were certified as having died from convulsions; the corresponding figure for 1936 was 159.

Table VIII is unreliable, the only figures that may be used with any exactitude for comparison are those shown in Table VII, and in the Infant Mortality chart.

# PENANG MUNICIPALITY

## INFANT MORTALITY



NOTE:—Registration of births is believed to have been more accurate from September, 1920.



Table IX is given below to show a comparison between births, infant mortality and general death rate for the preceding ten years and for 1937.

TABLE IX.

Year	Estimated population	Births		Deaths under 1 year		Deaths at all ages		Corrected Rate
		Total	Rate per thousand population	Total	Rate per thousand births	Crude Total	Crude Rate	
1927	138,635	5,151	37.15	816	158	4,860	4,045	29.18
1928	141,348	5,332	37.72	826	155	4,670	3,668	25.95
1929	144,114	5,410	37.54	815	151	4,126	3,480	24.15
1930	146,935	5,630	38.32	809	144	3,939	3,259	26.81
1931*	149,964	5,315	35.44	690	130	3,710	3,241	21.61
1932	152,908	5,129	33.54	688	134	3,569	3,200	23.34
1933	156,014	5,052	32.38	737	146	3,592	3,172	23.02
1934	159,085	4,977	31.28	777	156	3,935	3,492	24.73
1935	162,217	5,452	33.61	807	148	3,709	3,206	22.86
1936	165,411	5,975	36.12	755	126	3,659	3,215	22.12
Average for the preceding ten years		5,342		772		3,977		26.22
		35.22		145		3,398		22.40
1937	168,667	5,939	35.21	768	129	3,697	3,208	21.92
		35.05		129		19.02		

\* Census year.

**5. CAUSE OF DEATH.**

In Table X the total number of deaths viz., 3208 was certified as follows:—

Hospitals	...	894
Private Practitioners		863
Coroner	...	53
Deputy Registrar of Deaths	...	1,398, i.e. 43.58% of total

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TABLE X.

DEATHS.	SEX	AGES												Total.	Grand Total.	
		Under 1 mth.	2-3 mths.	4-12 mths.	1-5 yrs.	6-15 yrs.	16-25 yrs.	26-35 yrs.	36-45 yrs.	46-55 yrs.	56-65 yrs.	66-75 yrs.	Over 75 yrs.	Un- known.		
Enteric fever ...	M.	—	—	—	—	3	4	3	2	1	1	—	—	—	14	24 ✓
	F.	—	—	—	—	—	6	1	1	2	—	—	—	—	10	
Diarrhoea ...	M.	5	8	14	15	2	—	1	3	2	1	2	—	—	53	102 ✓
	F.	2	8	10	21	—	1	2	1	2	1	1	—	—	49	
Dysentery ...	M.	—	2	2	2	—	1	1	4	2	1	1	—	—	16	30 ✓
	F.	1	2	—	2	—	1	3	1	2	1	1	—	—	14	
Remittent fever ...	M.	—	—	—	—	—	—	—	—	—	—	1	—	—	1	3
	F.	—	—	—	1	—	—	—	1	—	—	—	—	—	2	
Unspecified fever ...	M.	8	22	33	48	17	28	23	29	21	8	1	1	—	239	458
	F.	5	9	35	57	19	25	18	18	21	7	4	1	—	219	
Syphilis ...	M.	1	2	1	—	—	2	—	3	2	—	1	—	1	13	21 ✓
	F.	2	1	—	1	—	1	1	—	—	2	—	—	—	8	
Puerperal fever ...	F.	—	—	—	—	—	4	6	3	—	—	—	—	—	13	13
Other septic diseases ...	M.	2	2	5	4	—	4	8	9	5	7	8	—	—	54	85
	F.	2	—	3	4	4	1	2	2	9	1	1	2	—	31	
Pulmonary Tuberculosis ...	M.	—	—	3	—	3	21	44	50	52	22	10	2	—	207	293 ✓
	F.	—	—	3	2	3	16	28	17	11	4	2	—	—	86	
Other tubercular diseases ...	M.	—	—	2	3	—	1	5	—	1	1	—	—	—	13	19 ✓
	F.	—	—	—	—	2	—	—	2	1	1	—	—	—	6	
Leprosy ...	M.	—	—	—	—	1	—	—	—	—	—	—	—	—	1	2
	F.	—	—	—	—	—	—	—	—	1	—	—	—	—	1	
Tetanus ...	M.	7	—	—	1	—	—	—	—	1	—	—	—	—	9	15
	F.	5	1	—	—	—	—	—	—	—	—	—	—	—	6	
Diphtheria ...	M.	—	—	1	5	1	—	—	—	—	1	—	—	—	8	10
	F.	—	—	—	1	1	—	—	—	—	—	—	—	—	2	
Influenza ...	M.	—	—	1	—	—	1	—	2	2	—	—	2	—	8	13
	F.	—	—	1	—	—	1	—	—	2	1	—	—	—	5	
Erysipelas ...	M.	—	—	—	—	—	—	1	—	1	—	—	—	—	2	4
	F.	—	—	—	—	—	—	—	1	—	—	1	—	—	2	
Measles ...	M.	—	—	—	1	—	—	—	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Cerebral Spinal Meningitis ...	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Carried forward ...	M.	23	36	62	79	27	62	87	102	90	42	24	5	1	640	1094
	F.	17	21	52	89	29	56	61	47	49	19	11	3	—	454	

DEATHS.	SEX	AGES													Total.	Grand Total.	
		Under 1 mth.	2-3 mths.	4-12 mths.	1-5 yrs.	6-15 yrs.	16-25 yrs.	26-35 yrs.	36-45 yrs.	46-55 yrs.	56-65 yrs.	66-75 yrs.	Over 75 yrs.	Un known.			
Brought forward ...	M.	23	36	62	79	27	62	87	102	90	42	24	5	1	640	1094	
	F.	17	21	52	89	29	56	61	47	49	19	11	3	—	454		
Malaria ...	M.	—	—	—	—	3	2	5	4	4	2	—	1	—	21	28	
	F.	—	—	—	—	1	2	1	1	—	—	2	—	—	7		
Malarial cachexia ...	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worms ...	M.	—	—	—	4	2	—	—	—	—	—	1	—	—	—	7	13
	F.	—	1	—	5	—	—	—	—	—	—	—	—	—	—	6	
Rheumatism ...	M.	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	2
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Cancer ...	M.	—	—	—	—	—	2	2	9	6	9	5	2	—	—	35	68
	F.	—	—	—	—	—	—	1	4	16	4	7	1	—	—	33	
Anaemia ...	M.	—	—	—	—	—	—	—	2	3	3	—	—	—	—	8	18
	F.	—	—	—	—	—	3	3	3	1	—	—	—	—	—	10	
Beri-beri ...	M.	—	—	1	—	1	8	9	10	7	5	1	—	—	—	42	56
	F.	—	—	—	—	2	1	6	1	2	2	—	—	—	—	14	
Delayed Parturition ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	F.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
Premature birth ...	M.	54	—	—	—	—	—	—	—	—	—	—	—	—	—	54	100
	F.	44	2	—	—	—	—	—	—	—	—	—	—	—	—	46	
Old age ...	M.	—	—	—	—	—	—	—	—	2	48	44	26	—	—	120	258
	F.	—	—	—	—	—	—	—	2	40	45	51	—	—	—	138	
Convulsions ...	M.	13	44	30	20	1	—	—	—	—	—	—	—	—	—	108	179
	F.	5	24	17	22	3	—	—	—	—	—	—	—	—	—	71	
Other diseases of Nervous system ...	M.	1	—	1	2	1	4	—	5	5	3	—	—	—	—	22	44
	F.	3	—	1	1	—	2	6	2	3	1	2	1	—	—	22	
Organs of special sense ...	M.	2	2	1	1	—	—	—	—	—	—	—	—	—	—	6	6
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Circulatory system ...	M.	6	—	—	1	1	6	15	18	50	39	23	8	1	168	265	
	F.	4	—	—	—	1	4	16	10	20	23	14	5	—	97		
Carried forward ...	M.	99	82	95	107	36	84	119	150	168	152	98	42	2	1234	2133	
	F.	74	48	70	118	37	67	94	67	93	91	79	61	—	899		

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DEATHS.	SEX	Under 1 mth.	AGES												Total.	Grand Total.	
			2-3 mths.	4-12 mths.	1-5 yrs.	6-15 yrs.	16-25 yrs.	26-35 yrs.	36-45 yrs.	46-55 yrs.	56-65 yrs.	66-75 yrs.	Over 75 yrs.	Un- known.			
Brought forward ...	M.	99	82	95	107	36	84	119	150	168	152	98	42	2	1234	2133	
	F.	74	48	70	118	37	67	94	67	93	91	79	61	—	899		
Bronchitis ...	M.	2	3	14	6	—	1	6	7	25	15	3	3	—	85	137	
	F.	2	9	12	5	1	1	2	6	8	2	4	—	—	52		
Pneumonia ...	M.	1	5	10	17	5	11	16	15	14	9	5	—	—	108	166	
	F.	—	3	11	9	5	5	10	1	3	3	1	7	—	58		
Other diseases of respiratory system ...	M.	15	17	37	39	6	5	5	15	7	8	1	—	—	155	274	
	F.	11	12	28	36	5	4	10	5	5	1	2	—	—	119		
Enteritis ...	M.	2	14	12	8	—	2	—	—	—	—	1	—	—	39	81	
	F.	3	14	10	6	—	2	—	2	2	—	3	—	—	42		
Diseases of liver ...	M.	1	2	—	—	—	2	—	2	6	5	1	—	—	19	26	
	F.	—	2	1	—	—	—	1	1	1	1	—	—	—	7		
Other diseases of digestive system ...	M.	4	4	5	3	1	3	14	8	10	6	2	—	—	60	91	
	F.	5	1	2	3	2	—	6	5	5	1	—	1	—	31		
Glandlike organs of uncertain use ...	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
	F.	—	—	—	—	—	—	—	1	—	—	—	—	—	—		
Urinary System ...	M.	—	—	—	2	4	9	7	13	25	25	10	3	—	98	180	
	F.	—	—	1	3	1	7	15	12	16	10	9	8	—	82		
Generative organs ...	M.	—	—	—	—	—	—	—	—	—	—	1	—	—	1	3	
	F.	—	—	—	—	—	1	—	—	—	1	—	—	—	2		
Child birth and abortion ...	F.	—	—	—	—	—	8	8	4	—	—	—	—	—	20	20	
Bones and Joints ...	M.	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	1
	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Accident and Negligence ...	M.	—	—	—	3	3	2	6	2	1	1	—	—	—	—	18	20
	F.	—	—	—	—	—	1	—	1	—	—	—	—	—	—	2	
Homicide, Suicide and Execution ...	M.	—	—	—	—	—	4	5	8	1	—	—	—	—	—	18	27
	F.	—	—	—	—	—	5	3	1	—	—	—	—	—	—	9	
Debility ...	M.	10	3	—	2	1	—	—	—	2	—	1	—	—	—	19	35
	F.	8	4	—	1	—	—	—	—	—	—	1	2	—	—	16	
Diabetes ...	M.	—	—	—	—	—	—	—	2	2	1	1	—	—	6	13	
	F.	—	—	—	—	—	1	—	1	1	3	—	1	—	7		
Total ...	M.	134	130	173	188	56	123	178	222	261	222	124	48	2	1861	3208	
	F.	103	93	135	181	51	102	149	107	134	113	99	80	—	1347		

## F 11

A comparison between the number of deaths attributed to some of the principal causes in 1937 and in the preceding ten years is shown here.

TABLE XI.

Disease	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	Average for preceding ten years	1937
Pulmonary Tuberculosis	422	432	485	374	420	324	232	276	251	304	352	293
Pneumonia	413	312	300	249	231	120	116	155	159	147	220	166
Bronchitis	142	190	133	122	106	155	190	175	154	178	155	137
Other Respiratory Diseases	140	168	190	145	226	224	227	400	297	253	227	274
Circulatory System	220	188	204	190	190	224	256	317	266	284	234	265
Enteric Fever	12	23	14	15	25	37	21	16	24	23	21	24
Enteritis	36	35	44	62	68	72	51	69	89	123	65	81
Dysentery	87	94	42	49	58	32	27	36	35	23	48	30
Diarrhoea	149	154	157	158	116	110	108	93	109	110	126	102
Other Diseases of Digestive System	39	49	52	62	51	64	48	59	80	83	59	91
Urinary System	144	103	111	98	105	145	162	214	140	171	139	180
Malaria	147	168	103	89	72	57	51	25	37	32	78	28
Unspecified Fever	767	413	435	400	427	507	523	507	443	406	483	458
Syphilis	31	43	30	53	48	53	46	48	33	22	41	21
Convulsions	438	424	380	360	316	303	320	213	216	199	317	179
Other Septic Diseases	87	77	69	85	80	72	79	69	76	56	75	85
Beri-beri	16	11	30	14	30	50	92	114	57	63	48	56
Debility	61	79	56	69	51	50	52	56	67	46	59	35
Premature Birth	63	85	82	62	64	67	61	89	91	102	77	100
Old Age	293	290	242	255	236	237	221	254	249	226	250	258

The distribution of the chief causes of death among the various races is shown in Table XII.

TABLE XII.

CAUSE OF DEATH.		European	Eurasian	Chinese	Malay	Indian	Others	Total
Pulmonary Tuberculosis	...	1	2	230	23	36	1	293
Pneumonia	...	—	2	112	12	39	1	166
Bronchitis	...	—	1	105	16	15	—	137
Other Respiratory diseases	...	—	2	222	12	38	—	274
Circulatory System	...	2	6	205	21	28	3	265
Enteric Fever	...	—	—	23	—	1	—	24
Enteritis	...	—	—	72	4	5	—	81
Dysentery	...	—	1	24	1	4	—	30
Diarrhoea	...	—	—	80	3	18	1	102
Other Diseases of Digestive System	...	—	1	69	3	16	2	91
Urinary System	...	—	1	133	23	21	2	180
Malaria	...	—	—	23	—	4	1	28
Unspecified Fever	...	—	1	288	89	78	2	458
Syphilis	...	—	—	17	1	3	—	21
Convulsions	...	—	—	116	54	8	1	179
Other Septic Diseases	...	—	—	54	11	19	1	85
Beri-beri	...	—	1	51	2	2	—	56
Debility	...	—	1	14	5	15	—	35
Premature Birth	...	—	—	77	4	18	1	100
Old Age	...	—	3	155	69	29	2	258

Details are appended of the sources of certification of the principal causes of death.

TABLE XIII.

Cause of Death	Number certified by			
	Hospitals	Private Practitioners	Deputy Registrar of Deaths	Coroner
Pulmonary Tuberculosis	142	73	78	—
Pneumonia	82	82	1	1
Bronchitis	3	25	109	—
Other Respiratory Diseases	116	75	82	1
Circulatory System	78	104	76	7
Enteric Fever	14	10	—	—
Enteritis	24	48	8	1
Dysentery	18	11	1	—
Diarrhoea	16	9	77	—
Other Diseases of Digestive System	53	25	11	2
Urinary System	37	59	84	—
Malaria	19	8	1	—
Unspecified Fever	10	84	364	—
Syphilis	17	4	—	—
Convulsions	4	28	147	—
Other Septic Diseases	40	26	18	1
Beri-beri	34	21	1	—
Debility	7	7	21	—
Premature Birth	42	14	43	1
Old Age	14	31	213	—

## 6. SEASONAL MORTALITY.

The deaths and death rate for each month are here recorded.

TABLE XIV.

Month.	Deaths.	Death rate per thousand	Month	Deaths.	Death rate per thousand
January	276	19.27	July	275	19.20
February	231	17.85	August	243	16.96
March	296	20.66	September	242	17.46
April	246	17.74	October	270	18.85
May	289	20.18	November	273	19.69
June	294	21.21	December	273	19.06

## 7. INFECTIOUS DISEASES.

Table XV shows the incidence among the various races of the principal infectious diseases which occurred during the year.

TABLE XV.

Race	Sex	Chicken-pox	Enteric Fever	Tuberculosis	Influenza	Puerperal Fever	Diphtheria	Measles	Erysipelas	Mumps	Cerebro-Spinal Meningitis	Scarlet Fever	Total
European	M	—	1	1	—	—	—	—	—	1	—	—	3
	F	—	3	—	—	—	—	—	—	—	—	—	3
Eurasian	M	8	—	1	—	—	2	—	—	—	—	—	11
	F	5	4	1	—	—	—	—	1	—	—	—	11
Chinese	M	10	41	176	5	—	12	2	3	—	2	1	252
	F	10	22	71	4	8	9	5	1	—	—	—	130
Malay	M	4	5	14	1	—	3	—	1	—	—	—	28
	F	—	4	9	—	11	2	—	—	—	—	—	26
Indian	M	116	5	27	2	—	—	26	—	19	—	—	195
	F	23	3	11	1	7	—	1	—	—	—	—	46
Others	M	—	—	1	—	—	1	—	—	—	—	—	2
	F	—	—	—	—	—	—	—	—	—	—	—	—
Total	M	138	52	220	8	—	18	28	4	20	2	1	491
	F	38	36	92	5	26	11	6	2	—	—	—	316
Grand Total		176	88	312	13	26	29	34	6	20	2	1	707

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Table XVI shows the main figures for the last 29 years relating to births, deaths, and infant mortality.

TABLE XVI.

Year	Total number of		Birth rate	Crude death rate	Infant Mortality
	Births	Deaths (crude)			
1909	1656	3923	16.15	38.25	337 (a)
1910	1905	3912	18.39	37.76	290
*1911	2133	4045	21.02	39.88	287 (b)
1912	2421	3829	23.69	37.47	261
1913	2464	3794	23.95	36.86	284
1914	2545	3774	24.55	36.40	260
1915	2808	3390	26.89	32.46	239 (c)
1916	2708	3341	25.74	31.76	255
1917	3099	4071	29.25	38.42	269
1918	2940	4909	27.55	45.99	229
1919	3203	4466	28.86	41.54	244
1920	3321	4090	30.67	37.75	205
*1921	3768	3775	30.56	30.61	167 (d)
1922	3738	3768	29.71	29.94	166
1923	4028	3801	31.39	29.62	155 (e)
1924	4257	3811	32.54	29.13	151
1925	4318	3858	32.38	28.93	147
1926	4434	4396	32.60	32.32	159
1927	5151	4860	37.15	35.05	158
1928	5332	4670	37.72	33.04	155
1929	5410	4126	37.54	28.63	151
1930	5630	3939	38.32	26.81	144
*1931	5315	3710	35.44	24.74	130
1932	5129	3569	33.54	23.34	134
1933	5052	3592	32.38	23.02	146
1934	4977	3935	31.28	24.73	156
1935	5452	3709	33.61	22.86	148
1936	5975	3659	36.12	22.12	126 (f)
1937	5939	3697	35.21	21.92	129

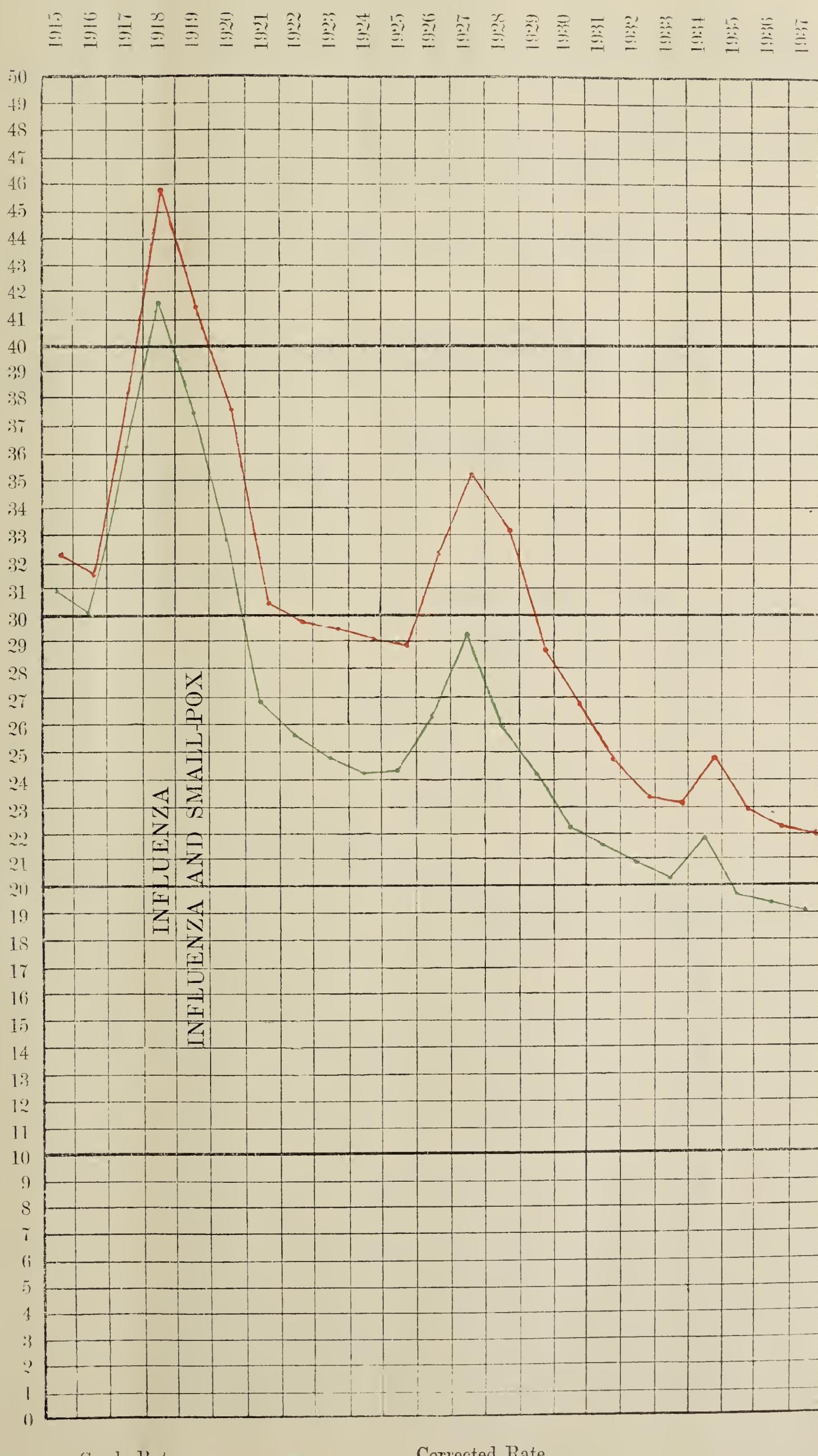
\*Census year

Note :—

- (a) 1st January, 1909—one District Nurse
- (b) 1st January, 1911—two District Nurses.
- (c) September, 1915—Maternity Hospital opened.
- (d) 1st December, 1921—two whole-time and seven part-time District Nurses.
- (e) 1st May, 1923—two whole-time and eight part-time District Nurses.
- (f) 1st August, 1936—Lady Assistant Medical Officer appointed and two Maternity and Child Welfare Centres started.

# PENANG MUNICIPALITY

## DEATH RATES





### 8. REGISTRATION OF BIRTHS AND DEATHS.

Notification of births and deaths may be made at any Police Station or at the Municipal Offices. Births are notifiable within 14 days, or, on payment of a late fee, within 42 days.

Deaths must be notified within 12 hours, or, on payment of a late fee, within 3 days.

### 9. MATERNITY AND CHILD WELFARE.

Throughout the year work continued at the two Centres, Kimberley Street and Coolie Lines, the following being a review of the various activities there.

#### Clinic Consultations.

As in 1936, Clinics were held at the Kimberley Street Centre on Mondays, Wednesdays, Fridays and on Saturday mornings; and on Tuesdays and Thursdays at the Coolie Lines Road.

	<u>First Attendances</u>	<u>Re-attendances</u>
Kimberley Street Centre ...	1,775	6,590
Coolie Lines Road Centre ...	671	2,057

#### Nationalities of First Attendances:

	<u>Kimberley Street</u>		<u>Coolie Lines Road</u>	
	<u>Centre</u>	<u>Centre</u>	<u>Centre</u>	<u>Centre</u>
Chinese ...	1,636	...	397	...
Tamils ...	105	...	148	...
Malays ...	19	...	98	...
Bengalis ...	9	...	26	...
Eurasians ...	6	...	2	...
Total	1,775	...	Total 671	...

#### The Disease Percentages of First Attendances:

	<u>Kimberley Street</u>		<u>Coolie Lines Road</u>	
	<u>Centre</u>	<u>Centre</u>	<u>Centre</u>	<u>Centre</u>
Bronchitis ...	18.19	...	14.17	...
Ascariasis ...	15.9	...	27.28	...
Furunculosis ...	10.6	...	6.26	...
Malnutrition ...	9.75	...	5.8	...
Eczema ...	5.02	...	4.33	...
Otorrhoea ...	2.93	...	2.09	...
Rickets ...	2.03	...	1.79	...
Broncho-Pneumonia ...	1.64	...	2.09	...
Phimosis ...	1.53	...	1.19	...
Scabies ...	1.24	...	1.64	...
Stomatitis ...	.68	...	.75	...
Conjunctivitis ...	.68	...	.45	...
Jaundice ...	.29	...	.29	...
Congenital Syphilis ...	.29	...	—	...
Hydrocele ...	.22	...	.15	...
Beri Beri ...	.22	...	—	...
Malaria (Enlarged Spleen) ...	.22	...	.15	...
Hare Lip & Cleft Palate ...	.17	...	—	...
Hernia (Inguinal) ...	.11	...	.15	...
Tetanus Neonatorum ...	.06	...	—	...

Infant Feeding.

	<u>Kimberley Street</u>	<u>Coolie Lines Road</u>
	<u>Centre</u>	<u>Centre</u>
Babies of one year old and under ...	932	343
Breast fed ...	495	208
Artificial fed ...	381	118
Breast and Artificial fed ...	56	17

"Marmite Soup," Cod Liver Oil, and Milk have been continued as in 1936.

Dentition.

	<u>Kimberley Street</u>	<u>Coolie Lines Road</u>
	<u>Centre</u>	<u>Centre</u>
Delayed Dentition ...	128	41
Carious Teeth ...	142	66

It was noted that in nearly all cases this Delayed Dentition was associated with malnutrition.

Carious Teeth were found chiefly amongst Chinese children and may possibly be due to the too frequent use of Condensed Milk.

Ante-natal work.

	<u>First Attendances</u>	<u>Re-attendances</u>
	<u>Centre</u>	<u>Centre</u>
Kimberley Street Centre ...	149	136
Coolie Lines Road Centre ...	76	49

Nationalities.

	<u>Kimberley Street</u>	<u>Coolie Lines Road</u>
	<u>Centre</u>	<u>Centre</u>
Chinese ...	137	1
Tamils ...	10	—
Bengalis ...	1	—
Eurasians ...	1	39
Malays ...	—	36

Diseases.

	<u>Kimberley Street</u>	<u>Coolie Lines Road</u>
	<u>Centre</u>	<u>Centre</u>
Marked Albuminuria ...	2	1
Syphilis ...	2	—
Gonorrhoea ...	1	—
Beri Beri ...	4	3
Cardiac Lesion ...	1	1

Birth Control.

Advice and practical instruction in the uses of contraceptives were given to 9 mothers whose condition and circumstances merited it.

Outdoor Visits.

In the Coolie Lines Centre area an attempt was made to follow up cases from lists supplied by the Health Sister. In all 225 visits were made by the two Health Nurses.

District Work.

As in former years this arduous and vital part of the work was carried out by two Health Sisters each being assisted by four locally qualified midwives who act as part-time nurses. Last year's policy of employing suitable part-time nurses for a longer period than six months resulted in keener work on the part of the nurses, which, in turn, gave the two Health Sisters more time to devote to the difficult task of supervising the work of all midwives. Evidence of improved midwifery was obvious. The total number of visits made was 59,651.

Midwives.

At the end of the year the midwives registered under the Midwives Ordinance (Chapter 67) were:—

1936				
Class	"A"	...	90	77
Class	"B"	...	295	271
Class	"C"	...	10	10

Infant Mortality.

144 babies died under the age of 7 days, and 44 between the ages of 7 and 14 days. Of the 768 infants who died under the age of 1 year 237 were less than one month old, and 223 were between one month and three months old. The infantile mortality rate was 129 as compared with 126 in 1936.

In an investigation re infant mortality during the year a "spot" map was made, and from it the general finding was corroborated in that the highest number of deaths occurred in congested areas. The Kimberley Street Centre is in fact ideally situated, but it is evident that an extension in the district work is necessary, because a large number of deaths especially in babies of 3 months and under occurred in the Sungei Pinang, Jelutong and Batu Lanchang areas. Other facts worthy of record here are as follows:—

Death notifications.

	3 months and under	4 months to 12 months	
Deputy Registrar of Deaths ...	207		133
General Hospital and Maternity Hospital ...	148	460	68
General Practitioners ...	105		107
			308

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Racial and age group distribution of deaths.

		<u>3 months and under</u>	<u>4 months to 12 months</u>
Chinese	Males	198	147
	Females	152	110
Indian	Males	34	13
	Females	24	15
Malay	Males	30	13
	Females	19	9
Others	Males	2	—
	Females	1	1
Total	Males	264	173
	Females	196	135
Grand Total		460	308
		<u><u>460</u></u>	<u><u>308</u></u>

Chief causes of mortality.

Pneumonia  
Convulsions  
Fever  
Enteritis  
Prematurity  
Bronchitis  
Marasmus

The infantile mortality, as above mentioned, was 129—not yet a standard for congratulation, and unfortunately a slight increase over the rate for 1936. This rise is mainly due to the higher number of deaths in Chinese children between the ages of 4 and 12 months. The figures are:—

		<u>1936</u>
Chinese	Males	147
	Females	99

In the case of Indians, Malays and "Others," the numbers are much the same as in 1936.

Some of the chief causes of mortality suggest that the teaching which is given to the mothers by the two Health Sisters and the District Nurses during the first 3 months of the baby's life is being disregarded thereafter—it is the practice for the district workers to cease visiting after the child is three months old. That our preventive work requires action in this direction is borne out in the following digest from a recent lecture by an eminent authority on child life and health:—

"To reduce infantile mortality calls for improvement in the machinery for protection of child life chiefly by improving the existing social arrangements for maintenance of health. It would be well to give the Health Nurse better training and to entrust her with more responsibility. The guardian of the young child is the mother, and if she is given the necessary knowledge much can be done to preserve child life."

## 10. VACCINATION.

Within Municipal limits, practically all vaccination is done by house-to-house vaccination by two sanitary sub-inspectors who act as whole time vaccinators. At the request of a charitable clinic it was arranged that one of these inspectors should be in attendance at this clinic once weekly, and there about 24 vaccinations per week were carried out.

5,939 births were reported during the year, a decrease of 36 over 1936.

Our staff did 4,376 vaccinations of which 4,153 were primary and 223 secondary. In addition, Government vaccinators during the year performed 608 secondary vaccinations, mostly in schools, while 593 primary vaccinations were done by private practitioners. No serious results were reported.

## II. ANTI-MOSQUITO WORKS.

A record of the specimens brought to the office for identification is as follows:—

<u>Species</u>	<u>Number</u>	<u>Chief breeding sites</u>
<u>Anophelines</u>		
A. malayensis	65	Kangkong beds Low ground Fish ponds Well Tins, etc. Tank
A. kochi	6	Low ground Tree Tongkang
A. maculatus	5	Stream Seepage
<u>Culecines</u>		
	<u>Per cent.</u>	
Culex	51	Building excavations Low ground, cart ruts, ditches, etc. Manure pit Fish pond Tank (contractors) Kangkong beds
Aëdes albopictus	28	Tins, etc. Tank (bathing) Low ground Roof gutters Coconut husks
Aëdes aegypti	21	Tank (bathing) Tins, jars, etc. Excavations Trees Drains

It is gratifying to record a reduction in the number of culecines found in and around domestic buildings and one hopes that this is an indication of a greater readiness on the part of the public to assist in controlling this nuisance. During part of the year it became necessary to cement fill breeding sites in trees in certain residential areas, the Municipal Engineer kindly assisting in this work.

With an increase in building operations, a large number of specimens were recovered from excavations, and not a few from the tanks in which tiles are soaked—in spite of several warnings it became necessary to prosecute one offender.

Kangkong beds provide ideal breeding sites for certain Culecine and Anopheline species. Having obtained sanction for control in this direction, a Government Gazette notification was published by which means certain kangkong bed areas were ordered, after due notice, to be filled in. It is our object, in time, to prohibit the cultivation of this plant in the purlieus of inhabited districts.

#### Deaths from Malaria.

All notifications were thoroughly investigated and the following were the findings regarding the probable origin of infection in the 26 deaths notified:—

Penang (Rural).....	6
Unknown.....	6
Province Wellesley.....	4
Kedah.....	3
Penang (Municipal).....	2
Perak.....	2
Burma.....	1
Dindings.....	1
Siam.....	1

The total deaths recorded were 6 less than in 1936. Of the 2 cases within the Municipality, 1 was diagnosed clinically or hearsay evidence supplied by the relatives just before death, and the origin of the other is doubtful in that the deceased's occupation took him beyond Municipal limits. The 6 "unknown" all died in hospital and on investigation at the addresses given all knowledge of them was denied.

The number of malarial-carrying mosquitoes (*A. maculatus*) continues to decrease, and the Hill gang on whose vigilance this state depends must still be maintained.

The total oil consumption for the year was 80,640 gallons of Anti-Malarial Mixture, cost being \$13,230.00, a decrease of 7,360 gallons and \$1,107.50 respectively over 1936.

#### 12. TUBERCULOSIS.

Apart from "Unspecified Fever," Tuberculosis was still the highest cause of mortality, but the total number of deaths was slightly less than in 1936, and was 59 less than the average for the preceding ten years.

In the past few years there has been a lot of talk about providing treatment of one sort or another for tuberculous cases. Interest in the treatment of disease will always be taken and with it I hope will continue to flow the conscience money of those who keep their fellowmen living in conditions which contribute towards the filling of our hospitals and sanatoria. But when experience has taught us that thousands of cases, who after three or more months living under ideal conditions, have apparently arrested the disease, return to the deplorable housing and feeding of their early days and within three weeks are as bad as ever, surely the first need is to give a little support in preventing tuberculosis and so spend money and energy on the improvement of the homes and conditions of life of the thousands who are at present living in circumstances which cannot but propagate tuberculosis.

## 13. TYPHOID.

In Table XV the racial distribution can be seen. In all, 88 cases were notified this number being 28 more than that of 1936.

60 cases were treated in hospital; 14 died and 46 recovered.

28 cases remained at home; 10 died and 18 recovered.

The total number of deaths was 24 and it will be seen in Table X that the mortality rate was greatest between the ages of 16 and 35, 3 deaths occurring in males between 6 and 15 years.

The number of cases has been increasing from year to year—a disturbing fact—and there is no peace in the thought that there must be many more cases in which no medical attention is sought. The distribution of the disease is general throughout the Municipality.

No doubt the etiology of typhoid is not understood by a large section of the public. "Typhoid always arises by direct or indirect contamination of the proximal end of one's alimentary canal from the distal end of another's!" The organism is a resistant one, e.g. it resists ordinary drying and cold—living typhoid bacilli have been found in ice cream after 2 years and five months. The human body is the organism's natural habitat.

A recent search of the literature in Britain and North America showed that 77 epidemics of typhoid or para-typhoid originated as follows:—

- 28 attributed to water,
- 31 attributed to milk,
- 7 attributed to other foods,
- 5 attributed to 'contact' infection,
- 6 undetermined.

Generally, sources of infection under supervision at present include water supply, milk (the majority of the public used tinned milk), eating shops, markets, market gardens, and fly-breeding sites are prevented and dealt with as far as possible. The conservancy system of night-soil removal is still in existence, but with the steady extension of water-carried sewage removal—no easy task—the negligible infection from this direction will soon be non-existent. One source which has not been effectively dealt with is the hawker menace. The only control in operation at the moment is that hawking is prohibited in certain streets. As a contrast, licensing of hawkers has been almost universally adopted in Malaya, even in small rural districts. Early in the year the Coroner held an inquest into the death from enteric infection of a Chinese woman, a mother, some of whose family were also affected. The death occurred in hospital—the result of food supplied by a hawker, and this is not the first case of its kind. Another contrast—licensing of animal and bird shops, of which there is but one, has been adopted during the year!

All notifications are very carefully investigated by members of the sanitary staff and the number which seem to originate from the hawker is not small. In spite of the fact that 'makan' sheds in schools are being more and more efficiently supervised, the school child is not exempt from this disease, for he often still prefers to buy an "ice-ball" (sng oan; ice kepai; ice oorundai) from the peripatetic vendor round the corner. The ice is usually taken from a pail which has been sitting conveniently on the ground—an open invitation to any dirt and infection which may blow along—the hawker has possibly just relieved the loaded distal end of his alimentary canal in a nearby latrine, and straightway proceeds to wash his hands on the ice-ball of his blissfully unsuspecting client!

Apart from typhoid there is the economic side of the question. The competition between the eating-shop keeper and the hawker is quite unfair; the former is handicapped by the expense of the upkeep of a shop, rent, light, trade refuse charges, etc., and many appeals have been made by such that something be done to keep the latter away from the vicinity of the eating-shop. Extension of prohibited areas would help to solve this problem but is no way assists in solving the typhoid problem.

Consider the following. At the end of the year there were in Penang Municipality.

Cook-shops	...	...	183
Eating-shops	...	...	743
Street-stalls	...	...	309
Hawkers carts	...	...	997
Kandar hawkers	...	...	innumerable.

Surely an ample sufficiency! One wonders just how many meals are prepared in the home per day.

It is our duty to control every source of this disease. The source most obviously requiring further control is the hawker, but any suggestion of additional supervision in this direction is invariably dubbed "persecution". As long as this mistaken attitude persists so long may we expect enteric diseases to remain with us.

#### 14. CHICKEN-POX.

176 cases were reported, 163 of which were admitted to the Quarantine Camp.

Of the total, 13 were Eurasians, 20 Chinese, 4 Malays and 139 Indians.

30 cases were under ten years of age and 146 were over that age, their ages ranging from 3 months to 67 years.

As usual the Indians showed a distinct susceptibility to this disease, the number affected being quite out of proportion to the size of the community.

#### 15. PUERPERAL FEVER.

26 cases were reported compared to 23 in 1936.

8 were Chinesse, 11 Malays and 7 Indians; 13 died and 13 recovered..

#### 16. INFLUENZA.

Under the Quarantine and Prevention of Disease Ordinance, (Chapter 186), this is classified as a dangerous infectious disease.

13 cases were reported, 9 were Chinese, 1 Malay and 3 Indians. All died.

One case each was reported during the months of February, August, October and December, 2 cases in March, 3 cases in June and 4 cases in May.

10 cases were notified by general practitioners, and 3 cases by Hospital.

#### 17. MEASLES.

This infectious disease is not notifiable under the Quarantine and Prevention of Disease Ordinance, (Chapter 186).

34 cases of Measles were reported, 7 Chinese and 27 Indians. 23 cases were treated at the Quarantine Camp: all recovered. 11 cases were treated in hospital; 1 died.

#### 18. ERYSIPelas.

6 cases were reported; 1 Eurasian, 4 Chinese and 1 Malay. 4 cases were treated in hospital; 2 died and 2 recovered. 2 remained at home and died.

**19. MUMPS.**

20 cases were reported; 1 European and 19 Indians. 19 cases were treated at the Quarantine Camp and 1 case was treated at home; all recovered.

**20. CEREBRO-SPINAL MENINGITIS.**

2 cases were reported, 1 in January and the other in October. Both were Chinese, aged 28 years and 30 years and they were treated in hospital; 1 died and the other recovered.

**21. SCARLET FEVER.**

One case, a Chinese, aged 7 years, was reported in July. He was treated in hospital and recovered.

**22. DIPHTHERIA.**

Year	Notifications	Deaths
1937	29	10
1936	35	14

Of the 10 fatal cases, the notifications were received either at the same time or one day after the death certificate. There is still a slowness to seek earlier medical attention—there has been little change in the number of deaths during the past ten years.

I have to thank the Government Bacteriologist for his co-operation in the examination of swabs.

I show here the monthly incidence (Table XVII).

TABLE XVII.

## DIPHTHERIA 1937.

Month.		Cases reported	Deaths
January	...	1	—
February	...	—	—
March	...	3	1
April	...	2	—
May	...	4	1
June	...	6	3
July	...	1	1
August	...	1	—
September	...	2	1
October	...	4	—
November	...	2	1
December	...	3	2
Total		29	10

TABLE XVIII

## DIPHTHERIA IN PENANG MUNICIPALITY.

	Estimated population (mid-year)	Year	Total cases reported	Deaths
Census (10th March)	101,469	1908	4	2
	102,520	1909	1	1
	103,582	1910	4	2
	101,182	1911	2	1
	102,167	1912	3	3
	102,913	1913	3	2
	103,664	1914	1	1
	104,420	1915	2	2
	105,183	1916	—	—
	105,950	1917	4	4
Census (25th April)	106,723	1918	2	2
	107,502	1919	4	3
	108,286	1920	1	1
	123,187	1921	5	4
	125,834	1922	4	2
	128,300	1923	4	4
	130,800	1924	4	2
	133,373	1925	8	6
	136,000	1926	6	5
	138,635	1927	8	5
Census (2nd April)	141,348	1928	15	5
	144,114	1929	11	5
	146,935	1930	20	10
	149,964	1931	23	9
	152,908	1932	29	13
	156,014	1933	46	15
	159,085	1934	28	13
	162,217	1935	39	18
	165,411	1936	35	14
	168,667	1937	29	10

## INFECTIOUS DISEASES HOSPITAL, PERAK ROAD.

214 patients and 29 contacts were admitted.

Details of disease and race are shown in Tables XIX and XX.

TABLE XIX.

Disease	Remaining on 31.12.36	Admitted	Total	Discharged	Transferred	Died	Remaining on 31.12.37
Chicken-pox	15	163	178	174	1	—	3
Measles	—	27	27	26	1	—	—
Mumps	1	19	20	20	—	—	—
Seabies	—	1	1	1	—	—	—
Observation	—	4	4	4	—	—	—
Contacts	1	29	30	30	—	—	—
Total	17	243	260	255	2	—	3

TABLE XX.

Race	Remaining on 31.12.36	Admitted	Total	Discharged	Transferred	Died	Remaining on 31.12.37
Eurasians	—	2	2	2	—	—	—
Chinese	—	12	12	12	—	—	—
Malays	2	6	8	8	—	—	—
Indians	15	217	232	227	2	—	3
Others	—	6	6	6	—	—	—
Total	17	243	260	255	2	—	3

## NOTES.

58 cases were admitted on personal application.

For no period during the year was the camp empty.

## 23. CONSERVANCY.

The cost of these services is largely governed by the quantity of refuse put out for collection and the number of occupied houses. In addition as from 1st February of this year the rates of pay of all coolies and of some of the subordinate staff were increased.

The amount of refuse collected during the year was 99,280 cubic yards which is 1,455 cubic yards below the amount collected during 1936 and 19,850 cubic yards below the highest amount collected in any one year which was 1930.

At the end of the year night soil service was being carried out to 9,310 latrines, an increase of 66 in spite of the fact that the service was discontinued to 210 latrines where water-closets had been substituted.

The comparative figures of conservancy revenue and expenditure for 1936 and 1937 are —

	1936	1937	Increase	Decrease
Revenue	\$178,130.42	\$177,322.41	—	\$808.01
Expenditure	\$281,121.93	\$296,472.26	\$15,350.33	—

Figures showing revenue and receipts for the past two years are given for comparison with expenditure table above:—

	1936	1937
Revenue from night soil collection ...	\$148,804.09	\$148,726.60
Revenue from trade refuse collection ...	\$ 27,183.46	\$ 27,216.36
Fines remitted from Police Court ...	\$ 2,142.87	\$ 1,379.45
 Total ...	 \$178,130.42	 \$177,322.41

The increase in expenditure for the year 1937 of \$15,350.33 is due chiefly to an item for insurance of vans which had not been included in previous years, and to the increase in rates of pay of labourers. The principal increases in expenditure during 1937 over the previous year are set out below:—

	Increase
Insurance of vans ...	\$10,015.00
Wages of coolies ...	6,202.85
Indian Immigration Assessment ..	1,238.68
Hire of transport ...	3,482.98
 ... .	 \$20,939.51

From the foregoing table it will be seen that the expenditure for 1937 compares very favourably with that of previous years.

As in previous years obstructions were largely dealt with by the Conservancy Department. Owing to inadequacies of the appropriate sections in the Municipal Ordinance, some difficulties were experienced in dealing with hawkers and with shopkeepers who obstruct five-foot ways with their goods.

During the year 155 people were summoned and 143 convictions were recorded.

## SCHEDULE OF EXPENDITURE

<b>Scavenging</b>						
Personal Emoluments ...	...	...	...	...	\$ 13,516.81	
Transport	...	...	...	...	3,080.19	\$ 16,597.00
Provident Fund	...	...	...	...	1,866.09	
Uniforms	...	...	...	...	174.35	
Telephones	...	...	...	...	34.50	
Water Supply	...	...	...	...	1,867.70	
Indian Immigration Assessment ...	...	...	...	...	2,605.90	
Insurance on Vehicles	...	...	...	...	5,745.00	
Miscellaneous	...	...	...	...	147.41	12,440.95
Wages of Divisional Overseers, etc.	...	...	...	...	3,423.00	
Coolies sweeping drains and loading refuse	}					
Coolies sweeping roads and loading refuse		...	...	...	77,023.43	
Hire of electric vans Nos. 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 21 and 22	...	...	...	...	23,568.80	
Hire of motor vans Nos. 1, 2, 3, 5, 15, 16, 17, 18, 19, 20, 23 and 24.	...	...	...	...	22,916.35	
Hire of Dennis Street Washers Nos. 1 and 2	...	...	...	...	4,752.00	
Hire of motor road brooms Nos. 1 and 2	...	...	...	...	1,510.00	
Sundry Stores	...	...	...	...	5,809.74	
Scavenging Tubs	...	...	...	...	1,620.00	
Miscellaneous	...	...	...	...	984.64	
					\$141,607.96	
Less Credits Received	...	...	...	412.45	141,195.51	
Total	...	...	...		\$170,233.46	

Nightsoil Collection					
Personal Emoluments ...	...	...	...	...	\$8,685.42
Transport	...	...	...	...	1,816.80
					\$10,502.22
Provident Fund	...	...	...	...	1,587.42
Uniforms	...	...	...	...	299.98
Telephones	...	...	...	...	34.50
Water Supply	...	...	...	...	5,938.77
Indian Immigration Assessment ...	...	...	...	...	505.09
Minor Works	...	...	...	...	153.78
Running Cost of Nightsoil Depot ...	...	...	...	...	9,601.79
Nightsoil Disposal	...	...	...	...	2,894.86
Insurance on Vehicles	...	...	...	...	4,270.00
Miscellaneous	...	...	...	...	936.60
					26,222.79
Wages of Divisional Overseers, etc.	...	...	...	...	4,553.00
Coolies loading, unloading and washing pails, etc on motor vans	...	...	...	...	30,145.04
Value of pails used	...	...	...	...	10,500.19
Repairs to pails	...	...	...	...	858.50
Miscellaneous	...	...	...	...	425.40
Sundry Stores	...	...	...	...	2,083.07
Hire of Cesspool Emptiers Nos. 1 and 2	...	...	...	...	3,891.60
Hire of S. D. Freighters Nos. 1, 2, 7, 8, 11, 12, 14 and 16					21,443.40
Hire of Albion Van No. 17 (January to May)	...	...	...	...	1,041.00
Hire of Bedford Vans Nos. 3, 9, 10, 15, 19, 23 and 24 ...					17,242.95
					92,184.15
Less Credits Received	...	...	...	...	2,670.36
Total	...	...	...	...	\$126,238.80

#### 24. SCAVENGING.

Daily scavenging was carried out throughout the year with the usual regularity over the whole Municipal area. There was cessation of work only on 26th January and 2nd November for Thaipusam and Deepavali festivals.

With regard to refuse collection, the following vans were used on scavenging service:—

12 Ransome Electric Lorries

7 Morris (one ton) Lorries

5 Bedford Lorries

This allowed 1 electric and 1 motor van to each of the 9 scavenging divisions with an additional electric van in "H" Division, the remainder being held in reserve for use when vans in regular use were under repair or for any other emergency. Early in the year the boundaries of the scavenging divisions were adjusted to enable the work to be carried out by 9 electric vans, the extra van in "H" Division now being held in reserve. This allowed a reduction in the labour force of one tindal and one gang of five coolies.

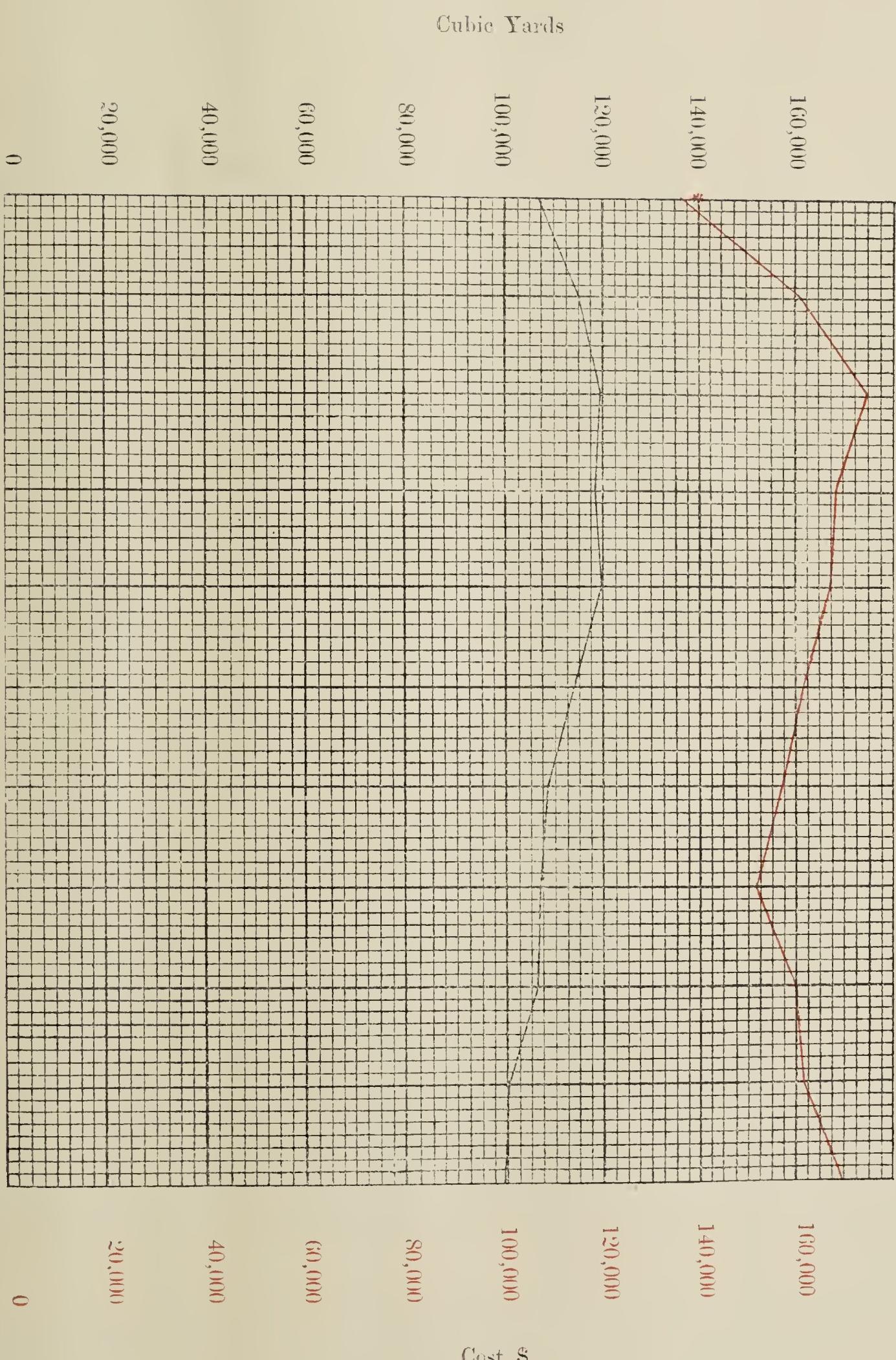
At the beginning of the year an experiment was carried out in Health Division 3 whereby householders were required to provide their own refuse bins in place of the half tar barrels supplied by the Municipality. The experiment proved to be satisfactory and the original area has now been extended to include Health Divisions 1, 2, 5 and 8. In conjunction with this experiment a supply of metal bins fitted with self closing lids was obtained and placed on the roads where required for Municipal use. In the remainder of the town the use of half tar barrels was continued and a total of 1,850 barrels were supplied for this purpose during 1937.

The amount of refuse collected shows a slight decrease in comparison with 1936, the figure being 99,280 cubic yards. Of this amount 75,172 cubic yards consisted of house refuse and 24,108 consisted of drain refuse. The amounts removed annually since 1927 may be compared with the figures given below:—

Year		Cubic yards of refuse removed
1927	...	107,716
1928	...	113,748
1929	...	119,002
1930	...	119,130
1931	...	118,807
1932	...	113,746
1933	...	106,337
1934	...	106,927
1935	...	106,578
1936	...	100,735
1937	...	99,280

APPENDIX No. I  
REFUSE COLLECTION

Graph Showing Comparative Annual Cost and Amount of Refuse Collected.



\*Including Workshop Expenditure and Overhead Charges not included in previous Years.



The following table gives a more detailed record of the amount of refuse dealt with during 1937:—

Month.	Electric Vans		One-Ton Motor Vans	
	Quantity in loads	Quantity in cubic yards	Quantity in loads	Quantity in cubic yards
January	... 1,496	7,031	1,561	1,873
February	... 1,394	6,552	1,457	1,748
March	... 1,362	6,401	1,544	1,853
April	... 1,273	5,983	1,476	1,771
May	... 1,272	5,978	1,523	1,828
June	... 1,449	6,810	1,869	2,243
July	... 1,392	6,543	1,897	2,276
August	... 1,334	6,270	1,818	2,181
September	... 1,206	5,668	1,700	2,040
October	... 1,273	5,983	1,784	2,141
November	... 1,219	5,730	1,708	2,050
December	... 1,324	6,223	1,753	2,104
Total	... 15,994	75,172	20,090	24,108

The comparison of the amount of refuse removed during recent years is shown in graph (Appendix No. 1).

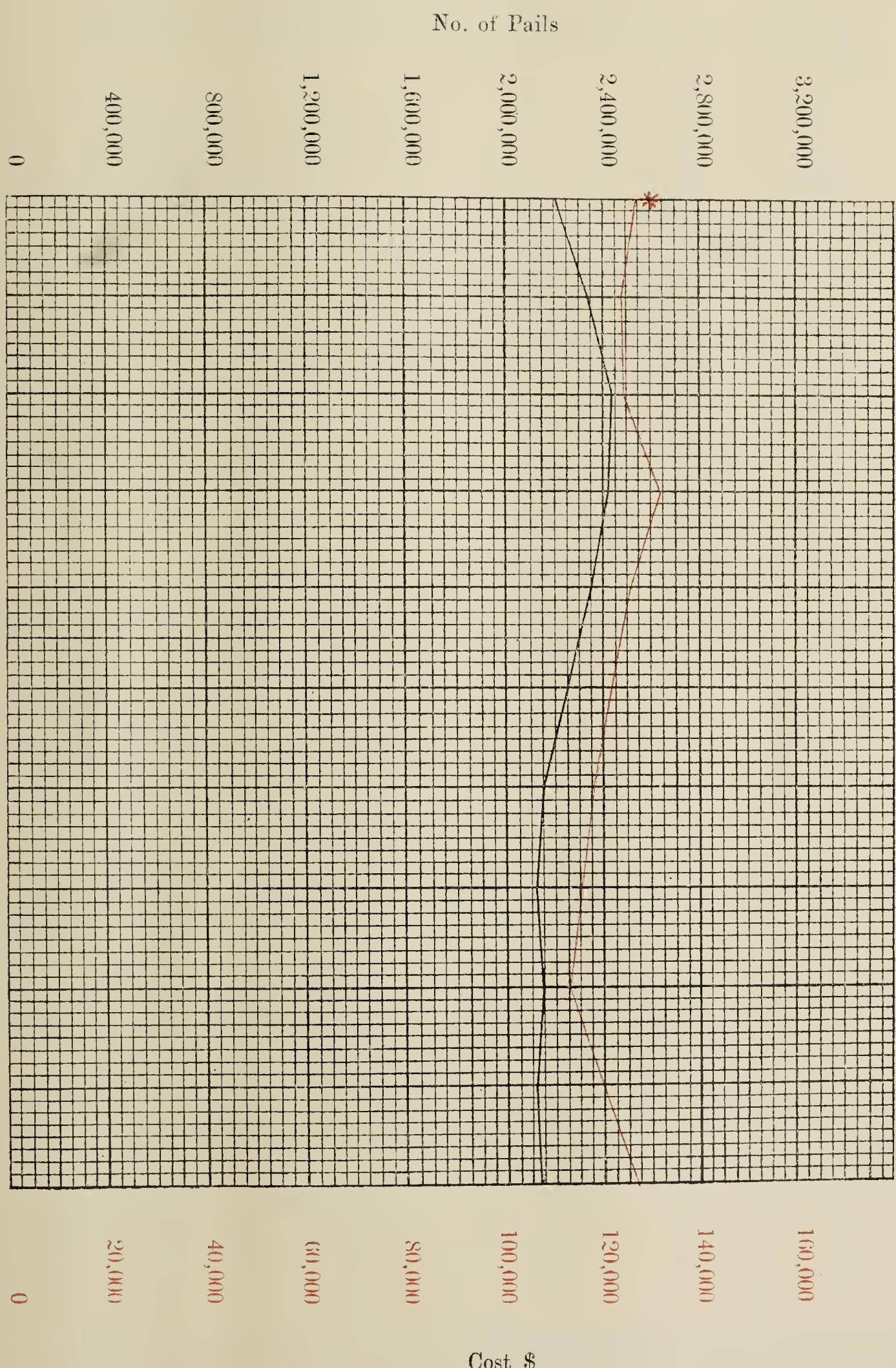
F 33

The following table shows the work carried out during the year by the two Dennis Street Washers which worked nightly when necessary from midnight to daybreak:—

Month.	Dennis No. 1		Dennis No. 2	
	Washing Gallons	Days Worked	Washing Gallons	Days Worked
January	646,800	27	534,600	28
February	462,000	27	429,000	27
March	556,600	30	557,700	30
April	284,900	18	320,100	18
May	445,500	25	137,500	8
June	526,900	29	533,500	29
July	550,000	28	557,700	28
August	575,300	30	573,100	30
September	376,200	20	118,800	6
October	356,400	20	17,600	1
November	436,700	24	389,400	23
December	453,200	25	403,700	22
Total	5,670,500	303	4,572,700	250

APPENDIX No. II  
**NIGHTSOIL COLLECTION**

Graph Showing Comparative Annual Cost and Number of Pails Collected.



\*Including Workshop Expenditure and Overhead Charges not included in previous Years.



## 25. NIGHT SOIL COLLECTION.

The total of night soil pails collected from latrines during the year amounted to 2,131,136 which is an increase of 2,053 over the previous year.

The following extract of figures shows the comparison of work with 1936.

	1936	1937	Increase
Number of latrines dealt with, December 31st	... 9,244	9,310	66
Number of pails removed	... 2,129,083	2,131,136	2,053

The number of pails of night soil collected in previous years is shown on the graph. (Appendix No. 2).

The average number of latrines to which the service was applied was 9,376, being an increase of 106; these latrines were situated:—

In Compulsory Area	...	...	8,877
In Voluntary Area	...	...	499
<hr/>			9,376
<hr/>			

The actual number of latrines to which the service was applied on December 31st, 1937 was 9,310 being classified:—

Public latrines, pails removed twice daily	...	...	112
Private „ „ „ „ „	...	...	21
Public „ „ „ once „	...	...	28
Private „ „ „ „ „	...	...	1,749
Private „ „ „ on alternate days	...	...	7,400

The charge for daily collection was \$2.50 each per month and for alternate daily collection \$1.25 per month except in the New Compulsory Area where a daily collection only is given at \$1.25 per month.

Where back lanes are constructed night soil pails are removed from the latrines in the back lanes, but in the older parts of the town where back lanes do not exist it is necessary to carry the latrine pails through the house.

	December	December	
	1936	1937	Increase Decrease
Latrines cleared from back lanes	... 7,500	7,541	41 —
Latrines cleared through houses	... 1,744	1,769	25 —

Wherever the night soil service is used the latrine pail is provided without additional charge to that quoted for removal. 1,892 new pails were issued while defective pails were repaired at the workshop as follows:—

General repairs	...	734
News rims fitted	...	299
Secondhand rims fitted	...	3,243

## Transport.

There were 13 vans on regular nightly service. They consisted of:—

7 Bedford Vans, capacity 40 pails each total —	280
6 S. D. Freighters, „ 40 pails each total —	240
	520

In reserve were:—

2 S. D. Freighters — capacity as above.

## 26. PUBLIC LAVATORIES.

The following is a list of the public lavatories. At the end of the year these comprised 189 latrines in all of which 49 are W.C.'s, the remainder being bucket latrines:—

Ah Quee Street	...	...	...	18 with Bath
Argyll Road	...	...	...	2
*Bridge Street	...	...	...	10
Campbell Street Market	...	...	...	16 with Bath
Central Market	...	...	...	16 with Bath
Chowrasta Market	...	...	...	14 with Bath
Dato Kramat Gardens (behind Police Station)				2
*Duke Street	...	...	...	2
*Esplanade Road	...	...	...	11
Government Public Latrines (Downing Street)				6
Jelutong Market	...	...	...	2 with Bath
Kampong Kolam	...	...	...	14 with Bath
Kampong Malabar	...	...	...	12
Malacca Street	...	...	...	4
Maxwell Road	...	...	...	8
*Municipal Office (near Car Shed)	...	...	...	4
Prangin Market	...	...	...	3 with Bath
Pulau Tikus Market	...	...	...	4 with Bath
Sikh Burial Ground, Western Road	...	...	...	2
Tek Soon Street	...	...	...	5
Sungei Pinang (near bridge)	...	...	...	2
*Sungei Pinang (by P.W.D. Store)	...	...	...	2
*Weld Quay No. 1 (near Market Street Ghaut)				10
Weld Quay No. 2	...	...	...	10
*Weld Quay No. 3 (near Prangin Road Ghaut)				10

\*These lavatories are of the Water Carriage Type, constructed of glazed brick-work, each closet having an automatic flushing cistern and a small water tank for ablution.

Lavatories shown "with Bath" have a Public Bath House attached.

All lavatories having bucket latrines are washed down and sprinkled twice daily with Hypochlorite Solution. In the case of lavatories with Septic Tank Installations no disinfectant is used but the interior of the buildings are cleansed thoroughly with water daily.

In the case of bucket latrines, pails are removed nightly by divisional vans and again between 10.00 a.m. and 1.00 p.m. by a van provided exclusively for public latrine work.

## 27. MARKETS.

During the year the staff was increased by the appointment of one peon to Prangin Market to cope with the work in that Market and to carry out relieving duties necessitated by vacation leave or sickness.

Minor maintenance work was carried out at Pulau Tikus, Prangin, Dato Kramat and Jelutong Markets.

At Central Market, general repairs, repainting and colour-washing were carried out and new wire meshing was fixed along the sides of the market.

At Campbell Street Market minor repairs, repainting and colour-washing were carried out.

In Chowrasta Market, four vacant beef stalls were demolished and an addition of four fish stalls made in the space thus available. Another duck stall was also erected. The pavements alongside the main building were levelled and concreted.

The open space at Prangin Market was reduced to some extent by the erection of the traffic circus.

Letting of stalls at 31st December, 1937 was as follows:—

Market	No. of stalls	No. occupied	No. vacant
Chowrasta	185	177	8
Prangin	81	67	14
Campbell Street	92	87	5
Central	32	30	2
Pulau Tikus	16	11	5
Dato Kramat	45	24	21
TOTAL	451	396	55

The anticipated use of Dato Kramat Market by Europeans living in the Ayer Itam District has not materialized as they still frequent Chowrasta Market, and to a certain extent accounts for the comparative failure of the Market.

The floors and drains in and attached to the Public Markets are washed with water and sprayed with Hypochlorite Disinfectant and kept as clean as possible.

## 28. STREET STALLS

As in previous years great difficulty was experienced in keeping licensed stalls within the limits of their sites. In these and other offences against the By-Laws warning notices were issued and in some cases after a recurrence of the offence, licences cancelled.

Unlicensed stalls were fairly numerous, and so far as was possible, the persons offending were dealt with either by arrests or summons.

Provision was made in the markets for all stalls selling fruit and vegetables and the sites cancelled accordingly. A number of transfers were not allowed due to strong suspicion that private selling of sites was being negotiated.

Many licencees are found to have control either directly or indirectly of more than one site.

The number of sites was reduced from 327 on 1st January, 1937 to 309 on 1st January, 1938.

The following table gives all licensed streets, showing the number of stalls used and vacant on 1st January, 1938:—

Street	Vacant Pitches	Licensed Pitches	Total
Acheen Street Ghaut	...	—	4
Armenian Street Ghaut	...	—	7
Armenian Street	...	—	13
Campbell Street	...	2	43
Cecil Street Ghaut	...	—	2
Cheapside	...	—	18
Cintra Street	...	3	47
Datok Koyah Road	...	—	3
Kampong Malabar	...	—	13
Keng Kwee Street	...	—	8
Kimberley Street	...	4	101
Kuala Kangsar Road	...	1	9
Market Street Ghaut	...	—	2
Noordin Street Ghaut	...	—	1
Presgrave Street Ghaut	...	—	2
Queen Street	...	1	5
Rope Walk	...	—	13
Sungei Ujong Road	...	—	4
Tek Soon Street	...	—	3
<b>Total</b>	<b>...</b>	<b>11</b>	<b>298</b>
			<b>309</b>

### 29. MEDICAL ATTENDANCES

Medical advice or treatment was given to Municipal employees 14,846 times.

The total for 1936 was 13,457 and for 1935 was 13,832.

The number seen per month varied from 745 in January to 1,559 in April.

The numbers seen in the different departments were:— Engineer 6,691, Health 5,033, Electrical 2,116, Fire Brigade 54, Jirricksha 28, Water 683, Secretariat 162 and Veterinary 79.

### 30. SALE OF FOOD AND DRUGS ACT, CHAPTER 191

Most of the work under this act is concerned with the control of supply of fresh milk. Each milk seller was examined as to his physical fitness before being licensed and in any case in which there were signs of disease which might be transmitted through milk licensing was deferred or refused. At this examination, personal hygiene and the cleanliness of all milk containers and measures were scrutinized.

Throughout the year one whole-time milk inspector supervised the sale of milk. Nine suspected samples of milk were sent to the Government Analyst and of these 8 were found to be adulterated. All sellers of adulterated milk were prosecuted and convicted with the exception of two, against one of whom a warrant of arrest was issued for non-attendance in Court and the other case was carried forward to 1938. Eleven others were prosecuted and convictions obtained—one for failing to expose his badge and ten for selling milk without a licence.

The total amount in fines was \$196.00.

### 31. DESTRUCTION OF RATS

In this work one assistant supervisor and six coolies were employed, their methods being direct slaughter after smoking out the runs, and to a less extent poison and traps.

By direct slaughter, 7,342 rats were accounted for during the year.

### 32. WATER SUPPLY

There was throughout the year an ample supply of good drinking water, the average daily consumption being 40 gallons per head, including water used for trade purposes and shipping.

### 33. FINANCIAL

The total expenditure for the year was \$171,091.26.

This includes the Quarantine Camp, the Maternity and Child Welfare Work, Vaccination, Anti-Mosquito Work, all pay and allowances and the Commissioners' donations to the Provident Fund of our staff.

The revenue was \$12,538.60 leaving \$158,552.66 as the cost of the department to the rate-payers.

This represents a Rate of 2.973 per cent. or 7.135 pence in the pound sterling.

The estimated population being 168,667, the total cost of the department for the year per head of population is about 94 cents or about two shillings and two pence sterling.

## 34. STAFF

I went home on leave on 13th February and returned on 3rd November. During my absence, Dr. E. W. Graham acted as Health Officer.

Mr. J. E. Miller was granted eight months leave commencing from 21st November.

Hamad bin Senawi, Milk Inspector, retired from service on medical grounds on 25th December.

Idris bin Haji Sabak was appointed Assistant Supervisor on 14th July in place of Kassim bin Ibrahim who died on 5th July.

The following resigned their appointments:—

Banlisha bin Lala Meah, Market Peon, on 1st January.

Che Mat bin Ibrahim, Market Peon, on 10th March.

Abdul Kader, Conservancy Overseer, on 19th June.

G. H. Coombs, Conservancy Inspector, on 26th October.

The services of the undermentioned were dispensed with:—

Mohamed bin Haniffa, Market Peon, on 1st February.

The following appointments were made:—

Abdul Samad bin Abdul Rahman, Market Peon, on 1st January.

Mohamed bin Long, Market Peon, on 1st February.

Hassan bin Itam, Market Peon, on 10th March.

D. A. Campbell, Conservancy Overseer, on 21st June.

Din bin Mirasa, Market Peon, on 1st July.

S. M. Soosay, Conservancy Inspector, on 18th November.

K. S. Naidu, Clerk, on 18th November.

I have to record with pleasure my appreciation of the co-operation given by the entire staff.

I have the honour to be,

Gentlemen,

Your obedient servant,

Sd. W. H. BRODIE

Municipal Health Officer.

Penang, 25th May, 1938.

To

The Municipal Health Officer,  
PENANG.

Sir,

I have the honour to submit the report of the work done by the staff during the year ending 31st December, 1937.

### GENERAL SANITATION

The staff made 24,877 inspections and 60,707 re-inspections, in which 1,359 premises were found defective and 1,648 dirty.

The following table shows how the notices were dealt with during the year.

Notices	Outstanding on 31-12-36	Unserved on 31-12-36	New notices issued 1937	New notices served 1937	Unserved on 31-12-37	Compiled with in 1937	Work proceeding on 31-12-37	Cancelled in 1937	Brought forward to 1938
Nuisance	28	—	71	71	—	53	1	1	45
Lime Washing	8	—	133	132	1	125	2	1	14
Latrine	17	4	429	430	3	415	1	—	32
Drain	11	7	147	154	—	147	1	7	11
Filthy Premises	17	—	326	317	9	317	6	1	17
Common Lodging House	6	—	589	589	—	588	—	5	2
Trade	22	—	903	903	—	904	—	—	21
Bakery, Cook Shop and Eating Shop	228	—	873	873	—	925	—	2	174
By-Law	14	—	199	199	—	198	1	1	14
Well	2	—	4	4	—	5	—	—	1
Partition	40	2	241	243	—	223	—	1	59
Open Space	10	—	67	66	1	56	—	4	16
Mosquito Order	31	1	181	182	—	183	2	—	30
Rat	—	—	14	14	—	12	—	—	2
Disinfection	1	1	539	540	—	535	—	6	—
Sanitary Installation	—	—	7	7	—	7	—	—	—
Closing Order	—	—	4	4	—	4	—	—	—
Boarding House	—	—	47	47	—	38	—	—	9
TOTAL	435	15	4774	4775	14	4735	14	29	447

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29 notices were cancelled for various reasons.

53 nuisance notices were complied with during the year. These dealt with 96 houses of which 11 were structurally altered to provide light and ventilation, 4 houses were generally repaired, 76 were either closed or demolished, and 5 for other nuisances.

Complaints were received daily, many of them anonymous and all were investigated and dealt with.

### WELLS

4 notices under Section 254 of the Municipal Ordinance were served and 2 brought forward from 1936. 5 notices were complied with resulting in the closing of a like number of wells, and 1 was carried forward to 1938.

### CEMETERIES

The Sub-Inspector in charge made 273 visits to the cemeteries.

### EXHUMATIONS

64 applications were received during the year and 22 brought forward from 1936, all of which were approved.

84 bodies were exhumed under special licence and the remaining number was carried forward to 1938.

### PASSENGERS

297 passengers arrived from infected ports and were kept under observation by the staff as against 160 last year.

### PLANS

339 plans submitted for approval by the Commissioners, were examined in this office as against 250 last year.

### PROSECUTIONS

111 summonses were issued during the year	97 convictions 10 withdrawn 1 discharged
91 were brought forward from 1936	94 carried forward
Total 202	Total 202

6 Abatement of Nuisance, 8 Closing, 1 Prohibition and 1 Mandatory Orders were obtained.

The fines imposed by the Magistrate amounted to \$1,177.00 as against \$3,235.50 the previous year.

## DISINFECTIONS

581 houses were disinfected during the year for the following causes:—

Tuberculosis	..	..	..	299
Diarrhoea	..	..	..	92
Enteritis	..	..	..	60
Chicken-pox	..	..	..	50
Enteric Fever	..	..	..	39
Diphtheria	..	..	..	12
Dysentery	..	..	..	22
Measles	..	..	..	4
Erysipelas	..	..	..	2
Cerebro-Spinal Meningitis	..	..	..	1
 TOTAL	..			581

The houses disinfected being distributed as follows:—

**TUBERCULOSIS:**—Beach Street (12); Perak Road (11); Burmah Road, Rope Walk and Carnarvon Street (9 each); Jelutong Road and Hutton Lane (8 each); Dato Kramat Road and Bridge Street (7 each); Prangin Road, King Street and Armenian Street (6 each); Cintra Street, Presgrave Street, Malay Street, Kedah Road, Kuala Kangsar Road, Sungai Pinang Road, Batu Lanchang, Green Lane, Noordin Street and Penang Road (5 each); Chulia Street, Magazine Road, Maxwell Road, Seck Chuan Lane, Campbell Street, Victoria Street and Perak Lane (4 each); Prangin Lane, Kampar Road, Bishop Street, Penang Road, Macalister Road, Kimberley Street, West Jelutong, Cecil Street, Market Lane, Armenian Street, China Street, Tanjong Tokong Road and Carnarvon Lane (3 each); East Jelutong, Trang Road, Love Lane, Malacca Street, Acheen Street, Patani Road, Jahudi Road, Stewart Lane, Transfer Road, Gladstone Road, Tye Sin Street, Irving Road, North Beach, McNair Street, Buckingham Street, Church Street, Phuah Hin Leong Road, Tek Soon Street, Kinta Lane, Western Road and Dato Koyah Road (2 each); Green Hall, College Lane, Leigh Street, Lorong Susu, Malay Street, Ghaut, Trusan Road, Peel Avenue, Barrack Road, Bukit Dunbar, Northam Road, Presgrave Street Ghaut, Cantonment Road, Queen Street, Sungai Ujong Road, Caunter Hall, Nyah Aboo Lane, Penang Street, Batu Lanchang Road, Chin Ho Square, Katz Street, Soo Hong Lane, Queen Street, Ho Tiang Wan Road, Aboo Sittee Lane, Argyll Road, Anson Road, MacCallum Street, River Road, Claimant Place, Nagore Road, Lorong Salamat, Madras Lane, Coolie Lines Road, Kelawei Road, Ayer Itau Road, Langkawi Road, Hong Kong Street, Market Lane, Ariffin Road, Sri Bahari Road, Muntri Street, Chulia Street, Bangkok Lane and Gaol Road (1 each).

**DIARRHOEA:**—Bridge Street (11); West Jelutong (7); McNair Street and Jelutong Road (4 each); Brick Kiln Road, Beach Street Prangin Lane and Hutton Lane (3 each); Kimberley Street, Seck Chuan Lane, Rope Walk, Cintra Street, Cecil Street, Hong Kong Street, Magazine Road and Leith Street (2 each); Campbell Street, Kampong Java Lama, Trusan Road, Ipoh Lane, Free School Road, Bishop Street, Nanking Road, Burmah Road, Burmah Lane, Waterfall Road, Perak Lane, Church Street, Weld Quay, Patani Road, Noordin Street, Hargreaves Road, Caunter Hall, Kinta Lane, Transfer Road, Katz Street, Lumut Lane, Carnarvon Lane, Perak Road, Prangin Road Ghaut, Cannon Street, Argyll Road, Chulia Street, Tye Sin Street, Cantonment Road, Dato Kramat Road, Armenia Street Ghaut, Kuala Kangsar Road, Victoria Street, East Jelutong, Malacca Street, Lorong Seratus Tahon, Jahudi Road and Sungai Pinang Road (1 each).

**ENTERITIS:**—Bridge Street and Tek Soon Street (4 each); King Street and West Jelutong (3 each); Dato Kramat Road, Jelutong Road, Brick Kiln Road, Campbell Street, Argyll Road, Macalister Road, Presgrave Street, Noordin Street, Penang Street, Cintra Street, Sungei Pinang Road and East Jelutong (2 Each); Kampong Java Bharu, Kedah Road, Perak Lane, Juru Lane, Rope Walk, Carnarvon Street, Chulia Street, Green Lane, Armenian Street, Malay Street, Kuala Kangsar Road, Kimberley Street, Prangin Road, Popus Lane, Tongkah Road, Perak Road, Maxwell Road, Muntri Street, Burmah Road, Bishop Street, Hutton Lane and Love Lane (1 each).

**CHICKEN-POX:**—Coolie Lines Road (9); Lumut Lane (4); Patani Road (3); Brick Kiln Road, Chowrasta Road, Northam Road, Tek Soon Street, Bangkok Lane and Burmah Road (2 each); Noordin Street, Kuantan Road, New Lane, Acheen Street, Brook Road, Muda Lane, Kuala Kangsar Road, Armenian Street, Church Street, Weld Quay, Magazine Road, Kinta Lane, Macalister Road, Argus Lane, Biggs Road, Lorong Salamat, Perak Lane, Transfer Road, Penang Road, Aboo Sittee Lane, King Street and Perak Road (1 each).

**ENTERIC FEVER:**—Chulia Street (6); Burmah Road, Beach Street and Carnarvon Lane (3 each); Rangoon Road and Acheen Street (2 each); Chowrasta Road, Church Street, Presgrave Street, Penang Street, Lumut Lane, Prangin Road, Macalister Road, Peel Avenue, Aboo Sittee Lane, Muntri Street, Kimberley Street, Cintra Street, Tye Sin Street, Khoo Sian Ewe Road, Clove Hall Road, Market Lane, Kedah Road, Gladstone Road, Sungei Pinang Road and Queen Street (1 each).

**DIPHTHERIA:**—Aboo Sittee Lane (2); Barrack Road, Batu Lanchang Lane, Argyll Road, Gladstone Road, Argus Lane, Bishop Street, Lorong Salamat, Bridge Street Prangin Road and Macalister Road (1 each).

**DYSENTERY:**—Tye Sin Street (2); East Jelutong, Kampong Malabar, Campbell Street, Sungei Pinang Road, Market Street, Carnarvon Street, Rangoon Road, Brick Kiln Road, Beach Street, Anson Road, Northam Road, Kedah Road, Kampar Road, McNair Street, Cintra Street, Chulia Street, Stewart Lane, West Jelutong, Noordin Street and Bishop Street (1 each).

**MEASLES:**—Victoria Street, Coolie Lines Road, China Street and Irving Road (1 each).

**ERYSIPelas:**—Cintra Street and Peel Avenue (1 each).

**CEREBRO-SPINAL MENINGITIS:**—Bridge Street (1).

## TRADES

The fees collected during the year for trade licences amounted to \$8,283.80 as against \$8,622.20 the previous year, a decrease of \$338.40.

## COMMON LODGING HOUSES

593 common lodging houses were licensed during the year as against 672 in 1936 and the fees collected amounted to \$1,274.90 as against \$1,393.40, a decrease of 79 houses and a decrease of \$119.00 in fees.

29 licensed Common Lodging Houses suspected of being badly overcrowded were visited in the small hours of the morning of 25th September. 2 houses were found to be overcrowded to the extent of about 100% in excess of the number for which they were licensed. The overerowding in 15 others varied from 11% to 80%.

The keepers of all houses showing an excess of more than 10% were prosecuted and fines totalling \$287.00 were imposed.

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### MILK

201 milk sellers were registered in 1937, as against 211 in 1936.

4,913 lactometer tests were made during the year, 9 samples being sent to the Government Analyst 8 of which were returned as being below standard.

19 summonses were issued, 8 for selling adulterated milk and 11 for offences against the bye-laws and regulations.

59 were brought forward from 1936.

Total 78

17 convictions were obtained.

3 were carried forward to 1938

58 summonses have been accumulated over a number of years against milk sellers who cannot be traced.

Total 78

Fines amounting to \$196.00 were imposed as against \$201.00 in 1936, a decrease of \$5.00.

### VACCINATIONS

Our vaccinators did 4,153 primary and 223 secondary vaccinations. 1,500 tubes of lymph were used at a cost of \$375.00.

One of our vaccinators took over the vaccination of children at Lam Hua Ee Hospital from April and did 840 vaccinations.

Private practitioners performed 593 primary vaccinations.

The Government vaccinator did 608 secondary vaccinations within Municipal limits.

### RATS

The gang of rat-catchers caught and destroyed 7,342 rats during the year by means of smoking, trapping and the use of poison.

### ANTI-MOSQUITO WORK

Four anti-mosquito gangs worked during the year, cutting down vegetation, digging, levelling and clearing ditches in "reserve roads" within Municipal limits. They also carried out works at the request, and at the expense of owners. All streams were cleared when necessary and, as in previous years, particular attention was paid to the stream at the Chetty Temple during the Thaipusam Festival.

The oiling gangs under supervisors regularly oiled all ditches, swamps and streams within Municipal limits and the Race Course, and Kelawei Road, Bagan Jermal, Mount Erskine, Western Road, Waterfall Road and Scotland Road including the foothills to Kampong Bahru, Batu Gantong and foothills, Caunter Hall, Perak Road, East and West Jelutong and Jelutong Village, Bukit Dunbar, Perak Lane, Burmah, Anson, Larut, Gottlieb, Sungai Pinang, River, Patani, Jelutong and Batu Lanchang Roads.

80,640 gallons of anti-malarial oil were used, the cost being \$13,230.00.

At the request of certain owners work was done on private property and the income from this source was \$1,230.99.

STAFF

Hamad bin Senawi, Milk Inspector, retired from service on medical grounds on 25th December.

Idris bin Haji Sahak was appointed Assistant Supervisor on 14th July in place of Kassim bin Ibrahim who died on 5th July.

It is my pleasure to acknowledge the excellent work and co-operation of the staff.

I have the honour to be,

Sir,

Your obedient servant,

W. G. COLEBECK,

for Chief Sanitary Inspector.

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Prosecutions		Brought forward from 1936	Issued in 1937	Cases in Court	Convictions	Withdrawn	Dismissed	Abatement of Nuisance Order	Closing Order	Ejectment Order	Prohibition Order	Mandatory Order	Total orders obtained	Fines.	Costs.
														\$	\$
Nuisance Notice	..	7	16	21	18	3	—	6	8	—	1	—	15	275	9 00
Abatement of Nuisance Order	..	4	—	—	—	—	—	—	—	—	—	—	—	—	—
Closing Order	..	5	2	2	1	—	2	—	—	—	—	—	—	—	—
Drain	..	—	—	1	1	1	—	—	—	—	—	1	1	—	50
Partition	..	—	—	2	1	1	—	—	—	—	—	—	—	9 50	— 50
Open Space	..	—	—	2	1	1	—	—	—	—	—	—	—	5 00	— 50
Trade	..	—	1	2	2	2	—	—	—	—	—	—	50	00	1 00
Unlicensed Common Lodging House	..	2	9	8	8	—	—	—	—	—	—	—	—	126 00	4 00
Breach of By-laws re Bakery, etc.	..	10	28	25	21	3	1	—	—	—	—	—	—	202 50	10 50
Breach of By-laws re C. L. House	..	—	2	1	1	—	—	—	—	—	—	—	—	3 00	— 50
Breach of By-laws re Pig-keeping	..	—	—	2	2	2	—	—	—	—	—	—	—	10 00	1 00
Mosquito Order	..	1	1	2	1	1	—	—	—	—	—	—	—	3 00	— 50
Milk Regulation	..	59	19	17	17	—	—	—	—	—	—	—	—	191 00	38 50
Birth	..	2	6	6	5	1	—	—	—	—	—	—	—	5 00	2 50
Death	..	—	2	2	2	—	—	—	—	—	—	—	—	10 00	1 00
Infringing terms of C. L. H. Licence	..	—	17	17	17	—	—	—	—	—	—	—	—	287 00	8 50
TOTAL ..		91	111	108	97	10	1	6	8	1	1	16	1177 00	78 50	

Licences Issued	1937.			1936.			Increase.		Decrease.				
	No.	Fees.		No.	Fees.		No.	Fees.		No.	Fees.		
		\$	cts.		\$	cts.		\$	cts.		\$	cts.	
Attap Depot	..	13	39	00	13	39	00	...	...	...	...	...	
Bakery	..	26	100	00	21	105	00	...	...	1	5	00	
Bone Storing	..	3	36	00	2	24	00	1	12	00	...	...	
Brazier	..	5	10	00	4	8	00	1	2	00	...	...	
Blachan Storing	..	1	12	00	1	12	00	...	...	...	...	...	
Blacksmith	..	19	38	00	23	46	00	...	...	4	8	00	
Coal Depot	..	2	24	00	3	36	00	...	...	1	12	00	
Cook Shop	..	188	940	00	191	955	00	...	...	3	15	00	
Charcoal Depot	..	22	132	00	24	144	00	...	...	2	12	00	
Candle Making	..	13	104	00	12	96	00	1	8	00	...	...	
Cattleshed	..	14	56	00	15	69	00	...	...	1	13	00	
Cowhouse	..	42	184	00	40	149	00	2	35	00	...	...	
Dried Grass Storing	..	—	...	...	1	3	00	...	...	1	3	00	
Dyeing House	..	4	40	00	4	40	00	...	...	...	...	...	
Dairy	..	2	12	00	1	6	00	1	6	00	...	...	
Eating Shop	..	743	3715	00	809	4045	00	...	...	66	330	00	
Fresh Fish	..	1	5	00	1	5	00	...	...	...	...	...	
Fresh Meat	..	30	150	00	29	145	00	1	5	00	...	...	
Fish Storing	..	36	432	00	35	420	00	1	12	00	...	...	
Foundry	..	9	18	00	9	18	00	...	...	...	...	...	
Hides Curing	..	5	60	00	6	72	00	...	...	1	12	00	
Hides Storing	..	1	12	00	1	12	00	...	...	...	...	...	
Hay Storing	..	4	12	00	4	12	00	...	...	...	...	...	
Kajang Storing	..	6	18	00	6	18	00	...	...	...	...	...	
Market Garden	..	93	...	...	89	...	...	4	...	..	...	...	
Milkseller	..	201	201	00	211	211	00	...	...	10	10	00	
Pig Sty	..	562	1124	00	535	1070	00	27	54	00	...	...	
Pepper Washing	..	1	10	00	1	10	00	...	...	...	...	...	
Pottery Making	..	1	2	00	1	2	00	...	...	...	...	...	
Rag and Feather Storing	..	6	72	00	6	72	00	...	...	...	...	...	
Sugar Boiling	..	7	42	00	10	60	00	...	...	3	18	00	
Soap Making	..	11	88	00	14	112	00	...	...	3	24	00	
Sheep or Goats	..	12	31	80	10	30	20	2	1	60	...	...	
Tannery	..	10	240	00	10	240	00	...	...	...	...	...	
Wood Depot	..	54	324	00	56	336	00	...	...	2	12	00	
Common Lodging House	..	593	1274	90	672	1393	90	...	...	79	119	00	
Boarding House	..	45	45	00	38	38	00	7	7	00	...	...	
<b>TOTAL</b>	..	<b>2779</b>	<b>9603</b>	<b>70</b>	<b>2908</b>	<b>10054</b>	<b>10</b>	<b>48</b>	<b>142</b>	<b>60</b>	<b>177</b>	<b>593</b>	<b>00</b>